

6 FEB 1953

Rpt. 5a.

## REPORT ON BOILERS.

No. 35966

Received at London Office.....

Date of writing Report.....19..... When handed in at Local Office.....FEB - 5 1953..... Port of.....SUNDERLAND.....

No. in Reg. Book..... Survey held at.....Sunderland..... Date, First Survey.....16 January 1953..... Last Survey.....4<sup>th</sup> February 1953.....

on the.....MARICOPA..... (Number of Visits.....Seven.....) Tons { Gross.....11342 Net.....8656

Master..... Built at.....Sunderland..... By whom built.....S. J. Lang & Son Ltd..... Yard No.....797..... When built.....1953.....

Engines made at.....Sunderland..... By whom made.....Wm. D. Ford & Co. Ltd..... Engine No.....283..... When made.....1953.....

Boilers made at.....Sunderland..... By whom made.....NORTH EASTERN MAR. ENG CO (1938) Ltd..... Boiler No.....4270..... When made.....1953.....

Nominal Horse Power.....1030..... Owners.....Thorvald Berg..... Port belonging to.....Lonsburg.....

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

Manufacturers of Steel.....Leobellus Ltd..... (Letter for Record.....)

Total Heating Surface of Boilers.....5114 ft<sup>2</sup> E.F.P. Is forced draught fitted.....Yes..... Coal or Oil fired.....oil on gas.

No. and Description of Boilers.....2. Single ended multitubular..... Working Pressure.....150 lbs/sq. in.

Tested by hydraulic pressure to.....275 lbs/sq. in. Date of test.....4-2-53 No. of Certificate.....4833 Can each boiler be worked separately.....Yes

Area of Firegrate in each Boiler..... No. and Description of safety valves to each boiler.....2. 3 $\frac{1}{4}$ " high lift.

Area of each set of valves per boiler { per Rule.....12.9 sq. in. as fitted.....16.58 sq. in. Pressure to which they are adjusted.....17 Are they fitted with easing gear.....

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

Smallest distance between boilers or uptakes and bunkers or woodwork..... Is oil fuel carried in the double bottom under boilers.....

Smallest distance between shell of boiler and tank top plating..... Is the bottom of the boiler insulated.....

Largest internal dia. of boilers.....14' 0" Length.....12' 0" Shell plates: Material.....steel Tensile strength.....29-33 tons

Thickness.....1 $\frac{5}{16}$ " Are the shell plates welded or flanged.....No Description of riveting: circ. seams { end.....DR lap inter.....3.29" long. seams.....T.R.D.B.S. Diameter of rivet holes in { circ. seams.....1 $\frac{1}{16}$ " long. seams.....1 $\frac{1}{16}$ " Pitch of rivets { 7.25"

Percentage of strength of circ. end seams { plate.....67.7 rivets.....45.8 Percentage of strength of circ. intermediate seam { plate.....85.35 rivets.....97.25

Percentage of strength of longitudinal joint { plate.....85.35 rivets.....97.25 combined.....90.2 Working pressure of shell by Rules.....150 lbs/sq. in.

Thickness of butt straps { outer.....3 $\frac{1}{4}$ " inner.....7 $\frac{3}{8}$ " No. and Description of Furnaces in each Boiler.....3. Single section

Material.....steel Tensile strength.....26-30 tons Smallest outside diameter.....3' 4 $\frac{3}{4}$ "

Length of plain part { top.....6 $\frac{7}{16}$ " bottom.....6 $\frac{7}{16}$ " Thickness of plates { crown.....7 $\frac{1}{16}$ " bottom.....7 $\frac{1}{16}$ " Description of longitudinal joint.....welded

Dimensions of stiffening rings on furnace or c.c. bottom..... Working pressure of furnace by Rules.....153 lbs/sq. in.

End plates in steam space: Material.....steel Tensile strength.....26-30 tons Thickness.....3 $\frac{1}{32}$ " Pitch of stays.....20" x 17"

How are stays secured.....nuts and washers Working pressure by Rules.....152 lbs/sq. in.

Tube plates: Material { front.....steel back.....steel Tensile strength { 26-30 tons Thickness { 7 $\frac{3}{8}$ " 7 $\frac{3}{8}$ "

Mean pitch of stay tubes in nests.....10.375" Pitch across wide water spaces.....13 $\frac{1}{2}$ " Working pressure { front.....159 lbs/sq. in. back.....316 lbs/sq. in.

Girders to combustion chamber tops: Material.....steel Tensile strength.....29-33 tons Depth and thickness of girder at centre.....9" x 1 $\frac{1}{4}$ " Length as per Rule.....2' 11" Distance apart.....10" No. and pitch of stays in each.....welded Working pressure by Rules.....156 lbs/sq. in. Combustion chamber plates: Material.....steel Tensile strength.....26-30 tons Thickness: Sides.....2 $\frac{1}{32}$ " Back.....2 $\frac{1}{32}$ " Top.....1 $\frac{1}{16}$ " Bottom.....2 $\frac{1}{32}$ "

Pitch of stays to ditto: Sides.....10 $\frac{1}{2}$ " x 9" Back.....9" x 9 $\frac{1}{8}$ " Top.....welded Are stays fitted with nuts or riveted over.....nut each end

Working pressure by Rules.....157 lbs/sq. in. Front plate at bottom: Material.....steel Tensile strength.....26-30 tons Thickness.....7 $\frac{3}{8}$ " Lower back plate: Material.....steel Tensile strength.....26-30 tons Thickness.....13 $\frac{1}{16}$ "

Pitch of stays at wide water space.....13 $\frac{1}{2}$ " Are stays fitted with nuts or riveted over.....nuts

Working pressure.....151 lbs/sq. in. Main stays: Material.....steel Tensile strength.....28-32 tons Diameter { At body of stay.....2 $\frac{3}{4}$ " No. of threads per inch.....6 Area supported by each stay.....340 sq. in. Over threads.....2 $\frac{1}{2}$ "

Working pressure by Rules.....158 lbs/sq. in. Screw stays: Material.....steel Tensile strength.....26-30 tons Diameter { At turned off part.....1 $\frac{3}{4}$ " No. of threads per inch.....9 Area supported by each stay.....82.25 sq. in. Over threads.....1 $\frac{3}{8}$ " - 1 $\frac{1}{2}$ "



Working pressure by Rules  $153.2 \text{ lbs}/\text{sq. in.}$  Are the stays drilled at the outer ends ☒ No Margin stays: Diameter { At turned off part,  $1\frac{3}{4}''$  corner.   
 or   
 Over threads  $1\frac{5}{8}''$

No. of threads per inch  $9$  Area supported by each stay  $85\frac{1}{2} \text{ sq. in.}$  Working pressure by Rules  $177.5 \text{ lbs}/\text{sq. in.}$

Tubes: Material *steel* External diameter { Plain  $2\frac{3}{4}''$    
 Stay  $2\frac{1}{2}''$  Thickness {  $5/16 - 3/8''$  No. of threads per inch  $9$

Pitch of tubes  $3\frac{3}{4} \times 3\frac{3}{4}''$  Working pressure by Rules  $218 \text{ lbs}/\text{sq. in.}$  Manhole compensation: Size of opening in shell plate  $17 \times 21''$  Section of compensating ring  $8\frac{7}{16} \times 1\frac{1}{8} \times 2''$  No. of rivets and diameter of rivet holes  $48 \times 1\frac{1}{16}''$

Outer row rivet pitch at ends  $7\frac{1}{4}''$  Depth of flange if manhole flanged  $3\frac{1}{2}''$  Steam Dome: Material ☒

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 { Steel forgings.....  
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.....forgings and castings.....and after assembly in place.....Are drain cocks on  
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 NORTH EASTERN MARINE ENGINEERING CO. (1933) LTD.

The foregoing is a correct description,

*W. H. Dawson* RESIDENT MANAGER

Dates of Survey while building { During progress of work in shops - - } 1953. Jan. 16, 17, 22, 28, 29, 30 Feb. 4 Are the approved plans of boiler and superheater forwarded herewith (If not state date of approval.) Yes  
 { During erection on board vessel - - } ..... Total No. of visits .....

Is this Boiler a duplicate of a previous case.....No.....If so, state Vessel's name and Report No

**GENERAL REMARKS** (State quality of workmanship, opinions as to class, &c.)..... These Booklets have been constructed in accordance with the approved plans, Secretaries letters and the requirements of the Rules  
The materials and workmanship are good.

These boilers have been securely fixed on board and Safety valves adjusted under full working conditions, to working pressure. For recommendations please see Machinery report.

N. J. J. J.

Survey Fee	...	...	£ 78 : 0 : 0	}	When applied for, <u>5/2/1953</u>
Travelling Expenses (if any)	£	:	:		When received <u>1953</u>

When applied for, 5/2/.....1953

When received.....19.....

*Engineer Surveyor to Lloyd's Register of Shipping.*

TUES. 21 APR 1953

Committee's Minute.

*Assigned*

See F.E. mch. 1921



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Foundation