Rpt. 5a.

REPORT ON BOILERS.

No. 32481

Received at London Office SEP 24 1938

Date of writing Report 192 When handed in at Local Office 23 SEP. 1938 Port of SUNDERLAND.

No. in Reg. Book. Survey held at SUNDERLAND. Date, First Survey — Last Survey Sep. 9 1938

(Number of Visits —) Tons Gross 1541 Net 913

on the S/S Joseph Swan

Master — Built at Sunderland By whom built S.P. Austin & Son, Ltd. Yard No. 350 When built 1938

Engines made at Sunderland By whom made N.E. Marine Eng. Co. (1938), Ltd Engine No. 2917 When made 1938

Boilers made at do By whom made do Boiler No. do When made do

Nominal Horse Power — Owners London Power Co. Ltd Port belonging to London.

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

Manufacturers of Steel Appleby Frodingham Steel Co (Letter for Record S)

Total Heating Surface of Boilers 2952 ft² Is forced draught fitted yes Coal or Oil fired coal

No. and Description of Boilers Two cylindrical multitubulars **Working Pressure** 200 lbs.

Tested by hydraulic pressure to 350 lbs Date of test 5/7/38 No. of Certificate 4280 Can each boiler be worked separately —

Area of Firegrate in each Boiler 59 ft² No. and Description of safety valves to each boiler 2 Deist Spring

Area of each set of valves per boiler { per Rule 17.45 □" / as fitted 19.20 □" } Pressure to which they are adjusted 200 lbs Are they fitted with easing gear yes

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 10½" Is oil fuel carried in the double bottom under boilers no

Smallest distance between shell of boiler and tank top plating 18" Is the bottom of the boiler insulated yes

Largest internal dia. of boilers 16'-6⅛" Length 11'-0" **Shell plates:** Material Steel Tensile strength 29/33 tons/□"

Thickness 1 17/16" Are the shell plates welded or flanged no Description of riveting: circ. seams { end D.R.L. / inter. — }

long. seams T.R.D.B.S. Diameter of rivet holes in { circ. seams / long. seams } 1 15/32" Pitch of rivets { 4⅜" / 10⅛" }

Percentage of strength of circ. end seams { plate 66.4 / rivets 42.77 } Percentage of strength of circ. intermediate seam { plate / rivets }

Percentage of strength of longitudinal joint { plate 85.49 / rivets 86.53 / combined 88.29 } Working pressure of shell by Rules 200.2 lbs.

Thickness of butt straps { outer 1 3/32" / inner 1 7/32" } **No. and Description of Furnaces in each Boiler** 3 Leightons. Hopkins Gourley necks.

Material Steel Tensile strength 26/30 tons/□" Smallest outside diameter 3'-11 9/16"

Length of plain part { top — / bottom — } Thickness of plates { crown / bottom } 21/32" Description of longitudinal joint welded

Dimensions of stiffening rings on furnace or c.c. bottom Working pressure of furnace by Rules 201.8 lbs.

End plates in steam space: Material Steel Tensile strength 26/30 tons/□" Thickness 1 15/32" Pitch of stays 23¼" x 21½"

How are stays secured double nuts Working pressure by Rules 202 lbs.

Tube plates: Material { front / back } Steel Tensile strength { } 26/30 tons/□" Thickness { 29/32" / 13/16" }

Mean pitch of stay tubes in nests 10.32" Pitch across wide water spaces 14" x 8½" Working pressure { front 218 lbs. / back 223 lbs. }

Girders to combustion chamber tops: Material Steel Tensile strength 28/32 tons/□" Depth and thickness of girder

at centre 10 1 7/8" Length as per Rule 34.4. Distance apart 12" No. and pitch of stays

in each 3 8¼" Working pressure by Rules 205 lbs. **Combustion chamber plates:** Material Steel

Tensile strength 26/30 tons/□" Thickness: Sides 13/16" Back 25/32" Top 13/16" Bottom 13/16"

Pitch of stays to ditto: Sides 10⅞" x 10½" Back 10¾" x 9¾" Top 12" x 8¼" Are stays fitted with nuts or riveted over nuts fitted

Working pressure by Rules 204 lbs. **Front plate at bottom:** Material Steel Tensile strength 26/30 tons/□"

Thickness 29/32" **Lower back plate:** Material Steel Tensile strength 26/30 tons/□" Thickness 29/32"

Pitch of stays at wide water space 14¾" x 9¾" Are stays fitted with nuts or riveted over nuts fitted.

Working Pressure 230 lbs. **Main stays:** Material Steel Tensile strength 28/32 tons/□"

Diameter { At body of stay, / or / Over threads } 3 3/8" / 3¾" No. of threads per inch 6 Area supported by each stay 23¼" x 21½"

Working pressure by Rules 200 lbs **Screw stays:** Material Steel Tensile strength 26/30 tons/□"

Diameter { At turned off part, / or / Over threads } 1 7/8" No. of threads per inch 9 Area supported by each stay 10¾" x 9¾"

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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* 12¾" x 9¾" *Working pressure by Rules* 200 lbs.

Tubes: *Material* Steel *External diameter* {*Plain* / *Stay* 3" *Thickness* {S.W.G. 7/16", 3/8", 5/16", 1/4" *No. of threads per inch* 9

Pitch of tubes 4¼" x 4¼" *Working pressure by Rules* 202 lbs. **Manhole compensation:** *Size of openi*

~~*shell*~~ *end plate* 16"x12" *Section of compensating ring* — *No. of rivets and diameter of rivet holes* —

Outer row rivet pitch at ends — *Depth of flange if manhole flanged* 4¼" **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 diamete*

stays — *Inner radius of crown* — *Working pressure by Rules* —

How connected to shell — *Size of doubling plate under dome* — *Diameter of rivet holes and p*

of rivets in outer row in dome connection to shell —.

Type of Superheater — *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*

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*

Rules — *Pressure to which the safety valves are adjusted* — *Hydraulic test pressu*

tubes —, *castings* — *and after assembly in place* — *Are drain cocks or valves fit*

to free the superheater from water where necessary —.

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. (1938) LTD.

Manufactu

RESIDENT MANAGER.

Dates of Survey while building {*During progress of work in shops* - - / *During erection on board vessel* - - - } Please see Mach. Rpt. *Are the approved plans of boiler and superheater forwarded herewith* (If not state date of approval.)

Total No. of visits

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

This boiler has been constructed under Special Survey in accordance with the approved plans Secretary's letter and the requirements of the Rules. Workmanship and materials are good.

For recommendation please see Rpt 4.

Survey Fee ... ... £ : : When applied for, 192

Travelling Expenses (if any) £ — : : When received, 192

L. D. Howes

Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute FRI 30 SEP 1938

Assigned See F. E. Rpt.