Rpt. 5a.

REPORT ON BOILERS.

No. 31972

Received at London Office 5 DEC 1936

Date of writing Report 192 When landed in at Local Office 20 NOV. 1936 1936 Port of Sunderland.

No. in Reg. Book. Survey held at Sunderland. Date, First Survey ✓ Last Survey 18 Nov 1936

on the S.S. "LLANASHE" (Number of Visits ✓) Tons { Gross 4836 Net 2911

Master Built at Sunderland By whom built Barton & Sons Ltd Yard No. 243 When built 1936

Engines made at Hebburn on Tyne By whom made Whitle's Mar. Eng. Co Ltd Engine No. 6C. When made 1936.

Boilers made at Sunderland. By whom made G. Clark (1936) Ltd Boiler No. 1200 When made 1936.

Nominal Horse Power 348. Owners Clarissa Radcliffe Stm Ship Co Ltd Port belonging to London.

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

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

Total Heating Surface of Boilers 3540 ft. ✓ Is forced draught fitted Yes. Coal or Oil fired Coal.

No. and Description of Boilers Two Single Ended multitubular marine 285 **Working Pressure** 230 ✓

Tested by hydraulic pressure to 395 ✓ Date of test 11.9.36 No. of Certificate 4199 4200 ✓ Can each boiler be worked separately Yes. ✓

Area of Firegrate in each Boiler 41.25 ft. No. and Description of safety valves to each boiler Two "Cockburn" High Lift ✓

Area of each set of valves per boiler { per Rule 4.6 o" as fitted 4.8 o" ✓ Pressure to which they are adjusted 230 Are they fitted with casing 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 1'-6" ✓ Is oil fuel carried in the double bottom under boilers no. ✓

Smallest distance between shell of boiler and tank top plating 3'-0" Is the bottom of the boiler insulated Yes.

Largest internal dia. of boilers 12'-9 13/32" ✓ Length 11'-6" ✓ **Shell plates:** Material Steel ✓ Tensile strength 29/33

Thickness 1 19/64" ✓ Are the shell plates welded or flanged no. ✓ Description of riveting: circ. seams { end D.R. Lap. ✓ long. F. 1 5/16" B. 1 3/8" ✓ } F. 3 3/4" ✓ B. 4 1/8" ✓

Long. seams T.R.D.B.S. ✓ Diameter of rivet holes in { circ. seams long. seams 1 3/8" ✓ } Pitch of rivets { 9 1/4" ✓

Percentage of strength of circ. end seams { plate F. 65 B. 66.6 rivets F. 44.1 B. 44 85.13 } Percentage of strength of circ. intermediate seam { plate ✓ rivets

Percentage of strength of longitudinal joint { plate rivets 92.0 combined 88.9 } Working pressure of shell by Rules 231. ✓

Thickness of butt straps { outer 1" inner 1 1/8" ✓ } **No. and Description of Furnaces in each Boiler** Three Corrugated (Deighton) ✓

Material Steel Tensile strength 26/30 ✓ Smallest outside diameter 2'-9 7/8"

Length of plain part { top bottom ✓ } Thickness of plates { crown 9/16" bottom ✓ } Description of longitudinal joint Weld. ✓

Dimensions of stiffening rings on furnace or c.c. bottom ✓ Working pressure of furnace by Rules 240 lbs/o" ✓

End plates in steam space: Material Steel ✓ Tensile strength 26/30. Thickness 15/16" ✓ Pitch of stays 19" x 18" ✓

How are stays secured Double nuts. Working pressure by Rules 235 1 1/16" ✓

Tube plates: Material { front back Steel } Tensile strength { 26/30. } Thickness { 27/32" } 580 W.W. 310 ✓

Mean pitch of stay tubes in nests 9 3/8" x 7 1/2" ✓ Pitch across wide water spaces 14" ✓ Working pressure { front back 365 }

Girders to combustion chamber tops: Material Steel ✓ Tensile strength 29/33. ✓ Depth and thickness of girder

at centre 9 3/4" x 1 3/4" ✓ Length as per Rule 2'-11" ✓ Distance apart 9 3/8" ✓ No. and pitch of stays

each 3 @ 8 1/4" ✓ Working pressure by Rules 233. ✓ **Combustion chamber plates:** Material Steel. ✓

Tensile strength 26/30. Thickness: Sides 23/32" ✓ Back 3/4" Top 23/32" Bottom 7/8" ✓

Pitch of stays to ditto: Sides 9" x 8 5/8" ✓ Back 8 1/2" x 8 5/8" Top 8 1/4" x 9 3/8" ✓ Are stays fitted with nuts or riveted over nuts. ✓

Working pressure by Rules 232, 269, 233. ✓ **Front plate at bottom:** Material Steel ✓ Tensile strength 26/30. ✓

Thickness 1 1/16" ✓ **Lower back plate:** Material Steel ✓ Tensile strength 26/30. ✓ Thickness 1 1/16" ✓

Pitch of stays at wide water space 14 1/2" ✓ 15 3/4" Are stays fitted with nuts or riveted over nuts. ✓

Working Pressure 288 ✓ **Main stays:** Material Steel ✓ Tensile strength 28/32. ✓

Diameter { At body of stay, 2 4/8" ✓ 3" ✓ Over threads 3 1/4" 3 3/8" ✓ } No. of threads per inch 6 ✓ Area supported by each stay 18 1/2" x 18" ✓

Working pressure by Rules 246, 234 ✓ **Screw stays:** Material Steel ✓ Tensile strength 26/30 ✓

Diameter { At turned off part, 1 3/4" ✓ Over threads } No. of threads per inch 9 ✓ Area supported by each stay 8 5/8" x 9" ✓ 8 5/8" x 8 1/2" ✓

Working pressure by Rules 233 ✓ Are the stays drilled at the outer ends No. Margin stays: Diameter { At turned off part. ✓ / or Over threads 1 7/8" 2"

No. of threads per inch 9. Area supported by each stay 11" x 8 5/8"

Tubes: Material S.D. Steel External diameter { Plain 2 1/2" / Stay 2 1/2" } Thickness { 8 WG. / 5/16" 3/8" 13/32 } Working pressure by Rules 261 No. of threads per inch 9. ✓

Pitch of tubes 3 1/4" x 3 5/8" Working pressure by Rules 232

shell plate (End plate). Section of compensating ring ✓ **Manhole compensation:** Size of opening

Outer row rivet pitch at ends ✓ Depth of flange if manhole flanged 4" No. of rivets and diameter of rivet holes ✓

Tensile strength ✓ Thickness of shell ✓ Description of longitudinal joint ✓ **Steam Dome:** Material None.

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

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 Sugden Combustion Chamber Type. ✓ Manufacturers of { Tubes / Steel castings } The Manchester Brt.

Number of elements 20 Material of tubes S.D. Steel Internal diameter and thickness of tubes 1 3/8" O.D. x 9 WG

Material of headers Forged Steel ✓ Tensile strength ✓ Thickness ✓ Can the superheater be shut off

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 2.58 □" ✓ Are the safety valves fitted with easing gear Yes. ✓ Working pressure as

Rules ✓ Pressure to which the safety valves are adjusted 230 lbs/□" Hydraulic test pressu

tubes 1000 lbs/□" ✓, castings 690 lbs/□" ✓ and after assembly in place 460 lbs/□" Are drain cocks or valves fi

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,

FOR GEORGE CLARK (1936) LTD.

Manufactu

Dates of Survey { During progress of work in shops - - } Please see Mchy. Rpt. Are the approved plans of boiler and superheater forwarded herewith Transmitted for Ship.

while building { During erection on board vessel - - - } (If not state date of approval.)

Total No. of visits

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 & the Rules of the Society.

The materials & workmanship are Good.

On completion the boilers were tested by hydraulic Press in accordance with the Rules & found tight & sound.

The boilers have been securely fixed on board the Vessel, examined under Steam & Safety valves of boilers & Superheaters adjusted to working Pressure & accumulation test carried out Satisfactorily.

For recommendation Please see Mchy. Rpt.

Survey Fee ... ... Charged on Mchy Rpt.

Travelling Expenses (if any) £ :

When applied for, 192

When received, 192

D. F. Fraser.

Engineer Surveyor to Lloyd's Register of Shipping

Committee's Minute FRI. 18 DEC 1936

Assigned