pt. 5a.

REPORT ON BOILERS.

No. 100.252

Received at London Office 17 MAR 1942

te of writing Report 0.9. 19 When handed in at Local Office 28/2/1942 Port of NEWCASTLE-ON-TYNE.

No. in Book. Survey held at Newcastle on Tyne Date, First Survey 16 May 1941 Last Survey 25 Febr 1942

(Number of Visits) on the S/S NORFJELL & S/S EMPIRE SAXON. Tons Gross 8129. Net 4631

ster Built at Newcastle By whom built Swan, Hunter & Wigham Richardson, Ltd Yard No. 1706 When built 1942-2

gines made at Newcastle By whom made ditto Engine No. 1706 When made 1942

ilers made at ditto. By whom made ditto. Boiler No. 1706 When made 1942

minal Horse Power Owners Port belonging to

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

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

tal Heating Surface of Boilers 9,555 sq ft Is forced draught fitted Yes Coal or Oil fired Oil fires

o. and Description of Boilers 3. Single Ended. **Working Pressure** 220 lbs

sted by hydraulic pressure to 380 lbs Date of test 19th 24th 29th Dec 1941 No. of Certificate 932, 933, 934. Can each boiler be worked separately Yes

rea of Firegrate in each Boiler oil fires No. and Description of safety valves to each boiler Two of 2½" dia Cockburn's Sup^d High Lift.

rea of each set of valves per boiler { per Rule 8.47 sq ins / as fitted 9.8 " } Pressure to which they are adjusted 220 lbs Are they fitted with easing gear Yes

case of donkey boilers, state whether steam from main boilers can enter the donkey boiler none

mallest distance between boilers or uptakes and bunkers or woodwork 12" Is oil fuel carried in the double bottom under boilers Yes

mallest distance between shell of boiler and tank top plating 2'-2" Is the bottom of the boiler insulated Yes

argest internal dia. of boilers 16'-2 31/32" Length 11'-9" **Shell plates:** Material S. Tensile strength 30 & 34 tons

hickness 1 33/64" Are the shell plates welded or flanged No Description of riveting: circ. seams { end D.R. lap / inter. none }

ng. seams T.R. dble butt Straps Diameter of rivet holes in { circ. seams / long. seams } 1 9/16" Pitch of rivets { 4.60 / 10½" }

ercentage of strength of circ. end seams { plate 66.03. / rivets 42.17. } Percentage of strength of circ. intermediate seam { plate / rivets none }

ercentage of strength of longitudinal joint { plate 85.11 / rivets 86.60 / combined 87.55. } Working pressure of shell by Rules 221 lbs.

hickness of butt straps { outer 15/32" / inner 19/32" } **No. and Description of Furnaces in each Boiler** Three Deighton Corrugated

Material S. Tensile strength 26 to 30 tons Smallest outside diameter 4'-1 5/8"

ength of plain part { top / bottom } Thickness of plates { crown / bottom } ¾" Description of longitudinal joint Fire welded.

Dimensions of stiffening rings on furnace or c.c. bottom none Working pressure of furnace by Rules 224 lbs.

End plates in steam space: Material S. Tensile strength 26 to 30 tons Thickness 1 7/32" Pitch of stays 15"x19½"

How are stays secured Nuts inside & outside Working pressure by Rules 228 lbs

Tube plates: Material { front / back S. } Tensile strength { 26 to 30 tons } Thickness { 1" / 27/32" }

Mean pitch of stay tubes in nests 10 5/8" Pitch across wide water spaces 14" Working pressure { front 257 lbs / back 226 lbs }

Girders to combustion chamber tops: Material S. Tensile strength 28 to 32 tons Depth and thickness of girder

at centre 9 7/8" x ¾" x two Length as per Rule 2'-9 15/16 (33.94) Distance apart 8¾" No. and pitch of stays

in each 3 @ 8" Working pressure by Rules 225 lbs **Combustion chamber plates:** Material S.

Tensile strength 26 to 30 tons Thickness: Sides 23/32" Back 23/32" Top 23/32" Bottom 7/8"

Pitch of stays to ditto: Sides 10"x8" Back 9¼"x8½" Top 8¾"x8" Are stays fitted with nuts or riveted over with nuts

Working pressure by Rules 221 lbs (min.) **Front plate at bottom:** Material S. Tensile strength 26 to 30 tons

Thickness 1" **Lower back plate:** Material S. Tensile strength 26 to 30 tons Thickness 1/16"

Pitch of stays at wide water space 14"x9¼" (17¼"x8¼" max). Are stays fitted with nuts or riveted over with nuts

Working Pressure 256 lbs. **Main stays:** Material S. Tensile strength 28 to 32 tons

Diameter { At body of stay, or Over threads 3" dia } No. of threads per inch 6. Area supported by each stay 286 sq ins

Working pressure by Rules 234 lbs **Screw stays:** Material S Tensile strength 26 to 30 tons

Diameter { ~~At turned off part,~~ or Over threads 1¾" & 1 5/8" } No. of threads per inch 9. Area supported by each stay 78 sq ins for 1¾" dia / 68 " for 1 5/8" dia

Contd. P.T.O.

Working pressure by Rules for 1 3/4" = 232 lbs for 1 5/8" = 222 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 105.3 sq ins. Working pressure by Rules 234 lbs

Tubes: Material S.D. Steel. External diameter { Plain 3" / Stay 3" }. Thickness { No 8 WG. / 5/16", 3/8" }. No. of threads per inch 9.

Pitch of tubes 4 1/4" × 4 1/4". Working pressure by Rules 224 lbs. min. **Manhole compensation:** Size of opening in shell plate 20" × 16" on Fore Bkr only. Section of compensating ring 10 7/8" × 1 33/64" × two sides. No. of rivets and diameter of rivet holes 32 @ 1 11/16" dia.

Outer row rivet pitch at ends 12". Depth of flange if manhole flanged 3". **Steam Dome:** ~~Material~~ none

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 ... stays ... Inner radius of crown ... Working pressure by Rules ...

How connected to shell ... Size of doubling plate under dome ... Diameter of rivet holes and pi... of rivets in outer row in dome connection to shell ...

Type of Superheater N.E. Mar. Stuckertube Type. Manufacturers of { Tubes Talbot Steel Coy. / Steel forgings Frodingham Steel Coy. / ~~Steel castings~~ }

Number of elements 204. Material of tubes S. D. Stl. Internal diameter and thickness of tubes 15 m/m bore × 2 1/2 m/m...

Material of headers Z. Stl. Tensile strength 26 to 30 tons. Thickness 1 7/8". Can the superheater be shut off a... 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 3.97 sq in (2 1/4" dia). Are the safety valves fitted with easing gear Yes. Working pressure as p... Rules 220 lbs. Pressure to which the safety valves are adjusted 225 lbs. Hydraulic test pressur... tubes 1500 lbs. 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,

SWAN, HUNTER, & WIGHAM RICHARDSON, LTD.

Manufactur...

Dates of Survey while building { During progress of work in shops - - / During erection on board vessel - - - } See Machy Report.

Are the approved plans of boiler ~~and superheater~~ forwarded herewith 3/1/41 (If not state date of approval.)

Total No. of visits ...

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

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 and the Society's Rules, and the materials and workmanship are good

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

See also Machy Rpt 4

Survey Fee ... ... £ See Rpt 4 Machy

Travelling Expenses (if any) £ ... : ...

When applied for, 19

When received, 19

A. Watt

Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute FRI. 20 MAR 1942

Assigned See Nwc. F.E. 100253