RECEIVED
Rpt. 5a.
APR 1944
D.O.

REPORT ON BOILERS.

MOB. 17701
No. 17619

Received at London Office 11 APR 1944

Date of writing Report 3-4-1944 When handed in at Local Office 6-4-1944 Port of Middlesbrough.

No. in Reg. Book. Survey held at Stockton-on-Tees. Date, First Survey 19th July 1943. Last Survey 28th March 1944.

on the S/S "EMPIRE PALADIN" (Number of Visits 18) Tons { Gross 8141 Net 4604

Built at Haverton Hill-on-Tees By whom built Furness Shipbuilding Co. Ltd. Yard No. 359 When built 1944-8

Engines made at West Hartlepool. By whom made Richardsons Westgarth Engine No. 2745 When made 1944

Boilers made at Stockton-on-Tees. By whom made Stockton C. Engn. & Riley Boilers Ltd Boiler No. 6822 When made 1944

Nominal Horse Power Owners Ministry of War Transport. Port belonging to Middlesbrough.

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

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

Total Heating Surface of Boilers 2080 sq' Is forced draught fitted Yes ~~Coal or~~ Oil fired

No. and Description of Boilers 1 S.E. Marine **Working Pressure** 180 lbs/□"

Tested by hydraulic pressure to 320 Date of test 28/3/44 No. of Certificate 7108. Can each boiler be worked separately

Area of Firegrate in each Boiler No. and Description of safety valves to each boiler 2 2½" Double Spring High Lift.

Area of each set of valves per boiler { per Rule 6.67 as fitted 7.95 } Pressure to which they are adjusted 185 lbs. Are they fitted with easing gear Yes.

In case of donkey boilers, state whether steam from main boilers can enter the donkey boiler No.

Smallest distance between boilers or uptakes and bunkers or woodwork 3'-6" Is oil fuel carried in the double bottom under boilers –

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

Largest internal dia. of boilers 13'-3 13/16" Length 11'-6" **Shell plates:** Material Steel Tensile strength 29-33.

Thickness 1 3/32" Are the shell plates welded or flanged No. Description of riveting: circ. seams { end D.R. inter. – }

long. seams TR. DBS. Diameter of rivet holes in { circ. seams 1 3/16" long. seams 1 3/16" } Pitch of rivets { 3.59" 8 3/16" }

Percentage of strength of circ. end seams { plate 66.9 rivets 44.7 } Percentage of strength of circ. intermediate seam { plate – rivets – }

Percentage of strength of longitudinal joint { plate 85.5 rivets 91.85 combined 87.36 }

Thickness of butt straps { outer 7/8" inner 1" } **No. and Description of Furnaces in each Boiler** 3 Deighton Corrugated

Material Steel Tensile strength 26-30 Smallest outside diameter 3'-1¼"

Length of plain part { top – bottom – } Thickness of plates { crown ½" bottom ½" } Description of longitudinal joint Welded.

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

End plates in steam space: Material Steel Tensile strength 26-30 Thickness 1 5/32" Pitch of stays 19" × 17½"

How are stays secured Clear hole in End plates with outside sealing weld & double nuts & washers.

Tube plates: Material { front back } Steel. Tensile strength 26-30. Thickness { 13/16" 11/16" }

Mean pitch of stay tubes in nests 9 3/8" Pitch across wide water spaces 13½"

Girders to combustion chamber tops: Material Steel Tensile strength 28-32 Depth and thickness of girder at centre 8 1/16" - 2 @ 13/16" Length as per Rule 2'-8" Distance apart 10" No. and pitch of stays in each 2 - 10"

Combustion chamber plates: Material Steel

Tensile strength 26-30 Thickness: Sides 21/32" Back 11/16" Top 23/32" Bottom 21/32"

Pitch of stays to ditto: Sides 10" × 8" Back 10½" × 7½" Top 10" × 10" Are stays fitted with nuts or riveted over Margin stays Nutted Each End. Others " " CC's only.

Front plate at bottom: Material Steel Tensile strength 26-30

Thickness 13/16" **Lower back plate:** Material Steel Tensile strength 26-30 Thickness 27/32"

Pitch of stays at wide water space 15" Are stays fitted with nuts or riveted over Nuts.

Main stays: Material Steel. Tensile strength 28-32.

Diameter { At body of stay, or Over threads } 2 7/8" No. of threads per inch 6

Screw stays: Material Steel. Tensile strength 26-30.

Diameter { At turned off part, or Over threads } 1¾" No. of threads per inch 9.

004275-004284-0291

Are the stays drilled at the outer ends No. Margin stays: Diameter { At turned off part, or Over threads 1 7/8" ✓

No. of threads per inch 9. ✓

Tubes: Material Seamless Steel ✓ External diameter { Plain 2½" ✓ Stay 2½" ✓ Thickness { 9 w. 9. ✓ 3/8" + 5/16" ✓ No. of threads per inch 9. ✓

Pitch of tubes 3 3/4" × 3 3/4" ✓ **Manhole compensation:** Size of opening in shell plate 20½" × 16½" ✓ Section of compensating ring 6¾" × 1⅛" ✓ No. of rivets and diameter of rivet holes 36 - 1 3/16" ✓

Outer row rivet pitch at ends 8 3/16" ✓ Depth of flange if manhole flanged **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 Thickness of crown No. and diameter of 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 Manufacturers of { Tubes 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

Pressure to which the safety valves are adjusted Hydraulic test pressure: tubes forgings and castings and after assembly in place Are drain cocks or 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 foregoing is a correct description,

Manufacturer.

Dates of Survey { During progress of work in shops - - } 1943 July 19, 30, Aug. 13, Sept. 8, 27, Oct. 25, Nov. 19, Dec. 1, 23, 30, 1944 Jan. 11, 18, 27, Feb. 8, 23, March 8, 22, 28 Are the approved plans of boiler and superheater forwarded herewith 23/3/43. (If not state date of approval.)

while building { During erection on board vessel - - - } Total No. of visits 18.

Is this Boiler a duplicate of a previous case Yes. If so, state Vessel's name and Report No. 17562 Huddersfield.

GENERAL REMARKS (State quality of workmanship, opinions as to class, &c.) This boiler has been constructed under Special Survey & in accordance with the Rule Requirements & approved plan.

The materials & workmanship are good & on completion the boiler was hydraulically tested to 320 lbs p" & found satisfactory.

This boiler is being forwarded to the Furness Shipbuilding Co. Ltd. for Messrs Richardson Westgarth Contract No. 2745.

This boiler has now been securely fitted on board & examined under working conditions & found satisfactory

On completion the SV's were adjusted under steam to 185 lbs p"

MOB 4 : 9 : 1944

Survey Fee ... ... £ 13 : 18 : - | When applied for, 6 - 4 - 1944.

SUPERVISION FEE

~~Travelling Expenses (if any)~~ £ 3 : 9 : 6 | When received, 19

C. Stuart

Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute TUES. 19 SEP 1944

Assigned see minute on T.S. Rpt.