

Rpt. 5a.

REPORT ON BOILERS.

No. 18191.

DEC 1946

Received at London Office 21 DEC 1946

Date of writing Report 16th Dec. 46. When handed in at Local Office 20th Dec. 46. Port of MIDDLESBROUGH.

No. in Survey held at Stockton-on-Tees. Date, First Survey 14th Nov. 1945. Last Survey 13th Dec. 19 46.

Reg. Book. on the "BRITISH FERN" (Number of Visits 33.) Tons (Gross Net)

Built at Sunderland By whom built Sir J Lamb & Sons Ltd. Yard No. 44 When built 1947

Engines made at Sunderland. By whom made Wm. Doxford & Sons. Engine No. 257 When made 1947.

Boilers made at Stockton-on-Tees. By whom made Stockton C.E. & Riley Mtrs. Ltd. Boiler No. 6938 When made 1946

Nominal Horse Power 684. Owners British Landers Co Ltd. Port belonging to London

MULTITUBULAR BOILERS—MAIN, AUXILIARY, OR DONKEY.

Manufacturers of Steel Appleby-Frodingham Steel Co. Ltd.

Total Heating Surface of Boilers 2020 sq. ft.

Is forced draught fitted Yes.

(Letter for Record S)

Coal or Oil fired Oil & Exhaust Gas.

No. and Description of Boilers 1 S.E. Multitubular.

Working Pressure 150 lbs per sq. inch.

Tested by hydraulic pressure to 275 lbs Date of test 13/12/46. No. of Certificate 7201 Can each boiler be worked separately Yes.

Area of Firegrate in each Boiler

No. and Description of safety valves to each boiler

3" double high lift

Area of each set of valves per boiler (per Rule 14.12 10.2 for HL Pressure to which they are adjusted 150 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

Is oil fuel carried in the double bottom under boilers No

Smallest distance between shell of boiler and tank top plating

Is the bottom of the boiler insulated Yes.

Largest internal dia. of boilers 12' 10.3/16" Length 11' 6"

Shell plates: Material Steel Tensile strength 29-33

Thickness 29/32" Are the shell plates welded or flanged

Description of riveting: circ. seams end DR. Lap

long. seams TR. DBS.

Diameter of rivet holes in

circ. seams

1.1/16"

long. seams

1.1/16"

Pitch of rivets 3.127

7.1/16"

Percentage of strength of circ. end seams

plate 66.6%

rivets 48.7

Percentage of strength of circ. intermediate seam

Percentage of strength of longitudinal joint

plate 84.9

rivets 103

Thickness of butt straps

outer 2.3/32"

inner 27/32"

No. and Description of Furnaces in each Boiler

2 Deighton Corrugated.

Material Steel

Tensile strength 26.30

Smallest outside diameter 3' 10"

Length of plain part

Thickness of plates

crown 1/2"

bottom 1/2"

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"

Pitch of stays 18 x 17"

How are stays secured Double nuts and washers screwed into both plates.

Tube plates: Material front Steel

Tensile strength 26.30

Thickness 7/8"

Mean pitch of stay tubes in nests 9 5/8"

Pitch across wide water spaces 13 1/2"

Girders to combustion chamber tops: Material Steel

Tensile strength 28.32

Depth and thickness of girder

at centre 7" - 2 @ 5"

Length as per Rule 2' 3 1/2"

Distance apart 9"

No. and pitch of stays

in each 2 @ 9"

Combustion chamber plates: Material Steel

Tensile strength 26.30

Thickness: Sides 21/32"

Back 19/32"

Top 21/32"

Bottom 21/32"

Pitch of stays to ditto: Sides 10" x 9"

Back 9 1/2" x 8 1/2"

Top 9 x 9"

Are stays fitted with nuts or riveted over nuts.

Front plate at bottom: Material Steel

Tensile strength 26 - 30

Thickness 7/8"

Lower back plate: Material Steel

Tensile strength 26 - 30

Thickness 3/4"

Pitch of stays at wide water space 13 1/2"

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 3/4"

No. of threads per inch 6

Screw stays: Material Steel

Tensile strength 26.30

Diameter At turned off part, or Over threads 1 1/2"

No. of threads per inch 9

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Are the stays drilled at the outer ends No ✓ Margin stays: Diameter { At turned off part, 1 1/2" & 1 3/8" or Over threads

No. of threads per inch 9 ✓

Tubes: Material Seamless Steel External diameter { Plain 2 1/2" Stay 2 1/2" Thickness { 10 S.W.G. 5/16" No. of threads per inch 9 ✓

Pitch of tubes 3 3/4" x 3 3/4" Manhole compensation: Size of opening in shell plate 21" x 17" ✓ Section of compensating ring 8 3/4" x 1 1/8" ✓ No. of rivets and diameter of rivet holes 52 - 1.1/16" ✓

Outer row rivet pitch at ends 7.1/16" 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 - - - 1945. Nov. 14, 23, 29, Dec. 14, 20, 28, 1946. Jan. 11, 16, Feb. 7, 14, 28, Mar. 7, 29, 26, May 10, 20, 30, June 14, 13, Are the approved plans of boiler and superheater forwarded herewith Yes. (If not state date of approval.)

while building { During erection on board vessel - - - July 2, 8, 15, 23, Aug. 7, 15, 26, Sept. 4, Oct. 9, 23, Nov. 5, 22, 29, Dec. 13, Total No. of visits 33.

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

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

The materials and workmanship are good and on completion the boiler was hydraulically tested to 275 lbs per sq. inch, and found satisfactory.

This boiler is being forwarded to Sunderland for Wm. Doxford 's Contract No. 257.

This boiler has been securely fitted on board the vessel & the Safety valves adjusted to working pressure.

In recommendation please see Machinery Rpt.

J. H. Law.

Survey Fee ... £ 20 : 5 : 00 When applied for, 20:12: 19 46.

Travelling Expenses (if any) £ : : When received, 19

E. Norman Stuart
Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute

FRI. 25 JUL 1947

Assigned *Sue F.E. mch. rpt.*



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