

# REPORT ON BOILERS.

No. 17991

Received at London Office

DEC 14 1939

Date of writing Report 11/12/1939 When handed in at Local Office 11/12/1939 Port of WEST HARTLEPOOL

No. in Survey held at WEST HARTLEPOOL

Date, First Survey 20/1/39

Last Survey 8/12/1939

on the S.S. ELMdene

(Number of Visits 120)

Tons { Gross 4853.20  
Net 2875.07

Built at West Hartlepool By whom built Wm. Gray & Co. Ltd. Yard No. 1095 When built 1939.

Engines made at West Hartlepool. By whom made Central Marine Engine Works Engine No. 1095 When made 1939

Boilers made at West Hartlepool. By whom made Central Marine Engine Works Boiler No. 1095 When made 1939.

Indicated Horse Power 397

Owners Elmdene Shipping Co. Ltd.

Port belonging to LONDON

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

Manufacturers of Steel Messrs. Bolinder, & Co.

(Letter for Record S ✓)

Total Heating Surface of Boilers 5530 sq ft

Is forced draught fitted Yes

Coal or Oil fired Oil ✓

No. and Description of Boilers 2 Multitubular Single ended

Working Pressure 200 lbs ✓

Tested by hydraulic pressure to 350 lbs. Date of test 4.8.39 No. of Certificate 3903 Can each boiler be worked separately Yes ✓

Area of Firegrate in each Boiler No. and Description of safety valves to each boiler Two Bouchon High Lift ✓

Area of each set of valves per boiler { per Rule 8.04 sq ft  
as fitted 9.816 sq ft 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 14"

Is oil fuel carried in the double bottom under boilers Yes ✓

Smallest distance between shell of boiler and tank top plating On main deck

Is the bottom of the boiler insulated Yes ✓

Largest internal dia. of boilers 15'-6" Length 11'-6"

Shell plates: Material Steel Tensile strength 29/33 tons ✓

Thickness 1 3/8" Are the shell plates welded or flanged No

Description of riveting: circ. seams { end D.R. 24  
inter. -

Long. seams T.R. Double butt straps Diameter of rivet holes in { circ. seams 1 7/16"  
long. seams 1 7/16"

Pitch of rivets { 4"  
9 3/8" ✓

Percentage of strength of circ. end seams { plate 64.06  
rivets 46.8

Percentage of strength of circ. intermediate seam { plate -  
rivets -

Percentage of strength of longitudinal joint { plate 85.44  
rivets 88.86  
combined 88.65

Working pressure of shell by Rules 203.4 lbs ✓

Thickness of butt straps { outer 1 1/16"  
inner 1 3/16"

No. and Description of Furnaces in each Boiler 3 Deighton section ✓

Material Steel

Tensile strength 26/30 tons ✓

Smallest outside diameter 3'-10 5/16" ✓

Length of plain part { top -  
bottom - Thickness of plates { crown 2 1/32"  
bottom 3/32"

Description of longitudinal joint Welded.

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

Working pressure of furnace by Rules 207.3 lbs ✓

End plates in steam space: Material Steel

Tensile strength 26/30 tons ✓

Thickness 1 1/32"

Pitch of stays 20 1/2" x 20" ✓

How are stays secured Double nuts ✓

Working pressure by Rules 213.6 lbs ✓

End plates: Material { front Steel  
back Steel

Tensile strength { 26/30 tons  
26/30 tons

Thickness { 1 1/16"  
2 1/32"

Lean pitch of stay tubes in nests 12 3/8" x 8 1/2"

Pitch across wide water spaces 14"

Working pressure { front 229.5 lbs ✓  
back 233.3 lbs ✓

Orders to combustion chamber tops: Material Steel

Tensile strength 28/32 tons ✓

Depth and thickness of girder

centre 8 3/4" 2-3/8" plates Length as per Rule 2'-10 1/16" ✓

Distance apart 8 3/4" ✓

No. and pitch of stays

each 3 @ 8 3/8" ✓

Working pressure by Rules 205 lbs ✓

Combustion chamber plates: Material Steel ✓

Tensile strength 26/30 tons ✓

Thickness: Sides 2 3/32"

Back 2 3/32"

Top 2 3/32"

Bottom 1 3/16" ✓

Pitch of stays to ditto: Sides 8 3/4" x 10"

Back 10" x 9"

Top 8 3/4" x 8 3/8" ✓

Are stays fitted with nuts or riveted over Nuts ✓

Working pressure by Rules 200.5 lbs ✓

Front plate at bottom: Material Steel

Tensile strength 26/30 tons ✓

Thickness 1 5/16"

Lower back plate: Material Steel

Tensile strength 26/30 tons ✓

Thickness 2 3/32"

Pitch of stays at wide water space 9" x 14 1/2" ✓

Are stays fitted with nuts or riveted over Nuts ✓

Working Pressure 231.5 lbs ✓

Main stays: Material Steel

Tensile strength 28/32 tons ✓

Diameter { At body of stay, -  
Over threads 3 3/8" ✓

No. of threads per inch 6 ✓

Area supported by each stay 410 sq in ✓

Working pressure by Rules 213.6 lbs ✓

Screw stays: Material Steel

Tensile strength 26/30 tons ✓

Diameter { At turned off part, -  
Over threads 1 3/4" ✓

No. of threads per inch 9 ✓

Area supported by each stay 90 sq in ✓

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Working pressure by Rules 201.7 lbs. Are the stays drilled at the outer ends ☒ No Margin stays: Diameter <sup>At turned off part,</sup> <sub>or</sub> Over threads 2" ☒

No. of threads per inch 9 Area supported by each stay 110.25 sq. in. Working pressure by Rules 224.3 lbs. <sup>110.25</sup>

Tubes: Material Steel External diameter <sup>Plain</sup> 3" <sup>Stay</sup> 3" Thickness <sup>N° 8 15 W.G.</sup> <sub>3/16, 1/4, 5/16</sub> No. of threads per inch 9

Pitch of tubes 4 1/4 x 4 1/8 Working pressure by Rules 202.5 lbs. Manhole compensation: Size of opening shell plate 20 x 16 Section of compensating ring 5' 1" x 2' 9" x 1 3/8 No. of rivets and diameter of rivet holes 32 - 1 1/2" holes

Outer row rivet pitch at ends 10 1/2" 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 <sup>Plate</sup> <sub>Rivets</sub>

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 pitch of rivets in outer row in dome connection to shell

Type of Superheater Smoke tube Manufacturers of <sup>Tubes</sup> Stewart & Lloyd <sup>Steel forgings</sup> Colvilles & Co. <sup>Steel castings</sup> Hopkins & Co.

Number of elements 50 Material of tubes Steel Internal diameter and thickness of tubes 17 1/4" 2 1/2" x 1/4"

Material of headers Steel Tensile strength 26/30 tons Thickness 1 7/16" 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 1.767 sq. ft. Are the safety valves fitted with easing gear Yes Working pressure as Rules Approved for 200 lbs. Pressure to which the safety valves are adjusted 210 lbs. Hydraulic test pressure tubes 1000 lbs. forgings and castings 600 lbs. and after assembly in place 1000 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,  
FOR THE CENTRAL MARINE ENGINE WORKS,  
(W. & A. Co., Ltd.)

Dates of Survey <sup>During progress of</sup> <sub>work in shops - -</sub> <sup>while</sup> <sub>building</sub> <sup>During erection on</sup> <sub>board vessel - - -</sub>

Are the approved plans of boiler and superheater forwarded herewith (If not state date of approval.) Yes

Total No. of visits

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

**GENERAL REMARKS** (State quality of workmanship, opinions as to class, &c.) These boilers have been constructed under special survey and in accordance with the approved plans for a working pressure of 200 lbs per square inch. The materials and workmanship have been found good. Upon completion the Boilers were tested in the presence of the undersigned to 350 lbs per square inch hydraulic pressure and showed no sign of weakness and were found tight and sound in every respect at that pressure.

Survey Fee ... £ : : When applied for, 10

Travelling Expenses (if any) £ : : When received, 10

Arthur W. Oxford  
Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute FRI. 29 DEC 1939

Assigned See Hpl. No. 17991