

Received at London Office 21 AUG 1930  
Date of writing Report 192 When handed in at Local Office 20 AUG. 1930 Port of Sunderland

No. in Reg. Book. Survey held at Sunderland Date, First Survey 25 Feb Last Survey 22 Aug 1930  
on the Motor Vessel IMA (Number of Visits 23 ) Gross 6841 Tons Net 4026  
Master Built at Sunderland By whom built Wm. Dwyer & Son Yard No. 608 When built 1930  
Engines made at Sunderland By whom made Do Engine No. 608 When made 1930  
Boilers made at Sunderland By whom made George Rank Ltd Boiler No. 1190 1/2 When made 1930  
Nominal Horse Power 598. Owners S. Manuassen Port belonging to Oslo.

MULTITUBULAR BOILERS MAIN, AUXILIARY, OR DONKEY.

Manufacturers of Steel Vereinigte Stahlwerke AG, Essen, Germany (Letter for Record 3)  
Total Heating Surface of Boilers 1819 sq ft Is forced draught fitted No Coal or Oil fired oil  
No. and Description of Boilers One oil mounted SE Working Pressure 150 lb/sq in  
Tested by hydraulic pressure to 275 lb/sq in Date of test 10/7/30 No. of Certificate 4108 Can each boiler be worked separately YES.  
Area of Firegrate in each Boiler - No. and Description of safety valves to each boiler Two spring loaded COCK VALVES 2 1/2" DIA  
Area of each set of valves per boiler (per Rule 8.184 sq in) (as fitted 9.816 sq in) Pressure to which they are adjusted 155 lb/sq in 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 2'-0" Is oil fuel carried in the double bottom under boilers YES  
Smallest distance between shell of boiler and tank top plating 2'-3" Is the bottom of the boiler insulated YES  
Largest internal dia. of boilers 12'-10 1/2" Length 11'-6 3/8" Shell plates: Material Steel Tensile strength 29 to 33 tons  
Thickness 7/8" Are the shell plates welded or flanged No Description of riveting: circ. seams (end 27/8" inter. 27/8")  
long. seams 7/8" Diameter of rivet holes in (circ. seams 15/16" long. seams 15/16") Pitch of rivets (plate 27/8" rivets 6 3/8")  
Percentage of strength of circ. end seams (plate 67.2 rivets 43.5) Percentage of strength of circ. intermediate seam (plate 85.25 rivets 92)  
Percentage of strength of longitudinal joint (plate 85.25 rivets 92) Working pressure of shell by Rules 155 lb/sq in  
Thickness of butt straps (outer 4 1/8" inner 1 3/8") No. and Description of Furnaces in each Boiler Three horizontal  
Material Steel Tensile strength 26 to 30 tons Smallest outside diameter 38 1/4"  
Length of plain part (top - bottom -) Thickness of plates (crown 1/2" bottom 1/2") Description of longitudinal joint Welded  
Dimensions of stiffening rings on furnace or c.c. bottom - Working pressure of furnace by Rules 188 lb/sq in  
End plates in steam space: Material Steel Tensile strength 26 to 30 tons Thickness 1 1/8" Pitch of stays 17 x 19  
How are stays secured D.N.W. Working pressure by Rules 161 lb/sq in  
Tube plates: Material (front Steel back Steel) Tensile strength (26 to 30 tons Thickness F 7/8" B 3/4")  
Mean pitch of stay tubes in nests 10 1/4" Pitch across wide water spaces 13 1/8" x 7 1/4" Working pressure (front 168 lb/sq in back 191)  
Girders to combustion chamber tops: Material Steel Tensile strength 29 to 33 tons Depth and thickness of girder  
at centre 7 1/8" x 1 1/2" Length as per Rule 31 7/8" Distance apart 9 1/2" No. and pitch of stays  
in each 3 @ 7' Working pressure by Rules 155 lb/sq in Combustion chamber plates: Material Steel  
Tensile strength 26 to 30 tons Thickness: Sides 9/16" Back 1/8" Top 9/16" Bottom 1/8"  
Pitch of stays to ditto: Sides 7 1/8" x 8 1/8" Back 7 1/4" x 7 1/4" Top 7" x 9 1/2" Are stays fitted with nuts or riveted over NUTS & R  
Working pressure by Rules 155 lb/sq in TOP Front plate at bottom: Material Steel Tensile strength 26 to 30 tons  
Thickness 7/8" Lower back plate: Material Steel Tensile strength 26 to 30 tons Thickness 13/16"  
Pitch of stays at wide water space 13 1/8" x 7 1/4" Are stays fitted with nuts or riveted over NUTS & R.  
Working Pressure 210 lb/sq in Main stays: Material Steel Tensile strength 28 to 32 tons  
Diameter (At body of stay, or Over threads 2 1/2" 2 7/8") No. of threads per inch 6 Area supported by each stay 19 x 17"  
Working pressure by Rules 165 lb/sq in Screw stays: Material Steel Tensile strength 26 to 30 tons  
Diameter (At turned off part, or Over threads 1 1/2" 1 1/2") No. of threads per inch 9 Area supported by each stay 8 x 7 1/4" Bk.



Working pressure by Rules 163 LBS Are the stays drilled at the outer ends No Margin stays: Diameter 1 1/2" <sup>At turned off part,</sup> 1 1/2" <sup>or</sup> 1 1/2" <sup>Over threads</sup>  
No. of threads per inch 9 Area supported by each stay 10 3/4 x 7 1/4 Working pressure by Rules 183 LBS  
Tubes: Material LAP WELDED IRON External diameter 2 1/2" Thickness 3/8 & 5/16 No. of threads per inch 9  
Pitch of tubes 3 5/8" x 3 1/4" Working pressure by Rules 300 LBS Manhole compensation: Size of opening in  
shell plate 20" x 16" Section of compensating ring 10 5/8" x 7 1/8" No. of rivets and diameter of rivet holes 40 @ 1 1/2"  
Outer row rivet pitch at ends 7 1/4" Depth of flange if manhole flanged 3 1/2" Steam Dome: Material -  
Tensile strength - Thickness of shell - Description of longitudinal joint -  
Diameter of rivet holes - Pitch of rivets - Percentage of strength of joint - <sup>Plate</sup> - <sup>Rivets</sup> -  
Internal diameter - Working pressure by Rules - Thickness of crown - No. and diameter of  
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 - Manufacturers of - Tubes -  
Number of elements - Material of tubes - Steel castings -  
Material of headers - Tensile strength - Thickness - Internal diameter and thickness of tubes -  
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 - Working pressure as per  
Rules - Pressure to which the safety valves are adjusted - Hydraulic test pressure:  
tubes - 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 Yes.

The foregoing is a correct description,  
FOR GEORGE CLARK LIMITED W. G. B. M. M. Manufacturer.

Dates of Survey 30/1 Feb. 25. 22. Mar. 6. 12. 25. Apr. 8. 9. 16. 25. Are the approved plans of boiler and superheater forwarded herewith  
while building During erection on board vessel - - May. 15. 22. 26. June 2. 5. 11. 16. July 28. 10 (If not state date of approval.)  
14. 22. Aug. 14. 22 Total No. of visits 23

GENERAL REMARKS (State quality of workmanship, opinions as to class, &c.) This boiler has been built under special survey & the materials & workmanship are good. On completion the boiler was satisfactorily fitted in the vessel & its safety valves adjusted under steam. For notation see machinery report.

Survey Fee ... £ 12-2-0  
Travelling Expenses (if any) £ : : -

When applied for, - 8 AUG. 1930  
When received, 23. 8. 1930

Matthew Caldwell. Harbottle  
Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute

Assigned

See F. E. Rpt.



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Foundation