

# REPORT ON BOILERS.

NOV 10 1937

Received at London Office JUN 29 1937

Date of writing Report 192 When handed in at Local Office 28. 6. 1937 Port of Belfast

No. in Survey held at Reg. Book. 21838 on the M.V. "BROOMDALE" Date, First Survey 7<sup>th</sup> Oct. 1936 Last Survey 17 June 1937 (Number of Visits 31) (Gross 8334.22. Net 4967.35.)

Master Built at Govan By whom built Harland & Wolff Ltd. Yard No. 973G When built 1937. Engines made at Finneston By whom made Harland & Wolff Ltd. Engine No. 973G When made 1937. Boilers made at Belfast By whom made Harland & Wolff Ltd. Boiler No. 973G When made 1937. Nominal Horse Power Owners The Admiralty. Port belonging to London.

## MULTITUBULAR BOILERS MAIN, AUXILIARY, OR DONKEY.

Manufacturers of Steel Colvilles Ltd. (Letter for Record S.)

Total Heating Surface of Boilers 1495<sup>00</sup> Is forced draught fitted Yes Coal or Oil fired Oil

No. and Description of Boilers One S.E. cylindrical Working Pressure 150 lbs

Tested by hydraulic pressure to 275 lbs Date of test 17-6-37 No. of Certificate 1032 Can each boiler be worked separately Yes

Area of Firegrate in each Boiler No. and Description of safety valves to each boiler One 2" double opening High Lift (app.) Area of each set of valves per boiler (per Rule 5.7" as fitted 6.28" Pressure to which they are adjusted 150 lbs. Are they fitted with casing 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 yes.

Smallest distance between shell of boiler and tank top plating 1'-6" Is the bottom of the boiler insulated yes.

Largest internal dia. of boilers 11'-4 13/32" Length 11'-7" Shell plates: Material S. Tensile strength 29/33 tons

Thickness 5 1/16" Are the shell plates welded or flanged No Description of riveting: circ. seams end double inter. Pitch of rivets 2.993" 6.375"

Percentage of strength of circ. end seams (plate 66.7.7. rivets 48.4.7. Percentage of strength of circ. intermediate seam (plate rivets 85.2.7. Working pressure of shell by Rules 155 lbs

Percentage of strength of longitudinal joint (plate 85.2.7. rivets 100.1.7. combined 90.6.2. Thickness of butt straps (outer 5/8" inner 3/4" No. and Description of Furnaces in each Boiler Two Dighton

Material S. Tensile strength 26/30 tons Smallest outside diameter 35 7/8"

Length of plain part (top bottom) Thickness of plates (aroon 7/16" bottom 7/16" Description of longitudinal joint Weld.

Dimensions of stiffening rings on furnace or c.c. bottom Working pressure of furnace by Rules 174 lbs

End plates in steam space: Material S. Tensile strength 26/30 tons Thickness 3/32" Pitch of stays 16" x 16"

How are stays secured Double nuts Working pressure by Rules 168 lbs

Tube plates: Material (front back) S Tensile strength 26/30 tons Thickness (3/32" 13/16"

Mean pitch of stay tubes in nests 9.375" Pitch across wide water spaces 13 1/2" Working pressure (front 167.5 lbs back 269 lbs

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

at centre 8 3/4" x 1 3/4" Length as per Rule 34 1/2" Distance apart 11 1/2" No. and pitch of stays

in each 3 at 9" Working pressure by Rules 157.3 lbs Combustion chamber plates: Material S

Tensile strength 26/30 tons Thickness: Sides 1/16" Back 1/16" Top 1/16" Bottom 3/4"

Pitch of stays to ditto: Sides 9 x 9" Back 8 3/8" x 8 3/8" Top 9 x 11 1/2" Are stays fitted with nuts or riveted over nutted C.C. centre stays riveted over inside. All others nutted

Working pressure by Rules 155 Front plate at bottom: Material S Tensile strength 26/30 tons

Thickness 3/32" Lower back plate: Material S Tensile strength 26/30 tons Thickness 3/32"

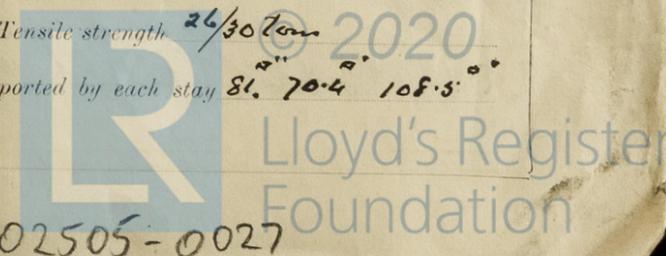
Pitch of stays at wide water space 13 x 8 3/8" Are stays fitted with nuts or riveted over Nuts

Working Pressure 208 lbs Main stays: Material S Tensile strength 28/32 tons

Diameter (At body of stay, Over threads) 2 1/2" No. of threads per inch 6 Area supported by each stay 240"

Working pressure by Rules 184.6 lbs Screw stays: Material S Tensile strength 26/30 tons

Diameter (At turned off part, Over threads) 1 1/2" 1 3/8" 1 3/4" No. of threads per inch 9 Area supported by each stay 81" 70.4" 108.5"



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Working pressure by Rules 154.64 Are the stays drilled at the outer ends No Margin stays: Diameter { At turned off part, 1 5/8" or Over threads }  
 No. of threads per inch 9 Area supported by each stay 89.4" Working pressure by Rules 170.4  
 Tubes: Material W.I. External diameter { Plain 2 1/2 Stay 2 1/2 } Thickness { 10156 1/2" 1/2" 3/16" } No. of threads per inch 9  
 Pitch of tubes 3 3/4" x 3 3/4" Working pressure by Rules 166.5 Manhole compensation: Size of opening in shell plate 16 x 12" Section of compensating ring 2'8" x 3'-0" x 3/4" No. of rivets and diameter of rivet holes 28 - 1 3/8"  
 Outer row rivet pitch at ends 9" Depth of flange if manhole flanged - Steam Dome: Material  
 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 of stays  
 How connected to shell Inner radius of crown Working pressure by Rules  
 of rivets in outer row in dome connection to shell Size of doubling plate under dome Diameter of rivet holes and pitch  
 Type of Superheater Manufacturers of { Tubes 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 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 HARBOR & WOLFF LIMITED Manufacturers  
 Assistant Surveyor 26/8/36

Dates of Survey { During progress of work in shops - - - } 1936 Oct 7, 9, 16, 17, 22 Nov 5, 11, 13, 14, 20, 24  
 { During erection on board vessel - - - } Dec 3, 7, 16, 17, 20, 23, 27 Feb 2, 5, 17 Mar 17, 22  
 Apr 12, 21 May 3, 5, 10, 11, 14, 17, 27 June 17  
 Are the approved plans of boiler and superheater forwarded herewith 26/8/36  
 (If not state date of approval.)  
 Total No. of visits 31

GENERAL REMARKS (State quality of workmanship, opinions as to class, &c.)  
 This boiler has been constructed under special survey and to an approved design. The workmanship & materials are good. It has been tested by hydraulic pressure in accordance with the Rules & is eligible in my opinion for use on a vessel classed with the Society. It is intended for use on a vessel building at Govan.  
 This boiler has been efficiently secured on board the M.V. 'Broomdale'. The safety valves have been adjusted under steam and tested for accumulation of pressure, and the boiler tried under working conditions and found satisfactory.

26/11/37

Survey Fee ... £ 10 : 0 : 0 When applied for, 28. 6. 1937  
 Travelling Expenses (if any) £ : : When received, 24. 7. 1937  
 (per hour)

Charles G. Hunter, H. Campbell  
 Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute GLASGOW 9-NOV 1937  
 Assigned See Gls. Rpt. No. 59000.

