

REPORT ON BOILERS.

2 JUN 1931

Received at London Office

Date of writing Report 19 When handed in at Local Office 1st June 1931 Port of Belfast

No. in Reg. Book. 69502 on the STEEL S.C. DUNAFRIC

Survey held at Belfast Date, First Survey 12th Dec. Last Survey 27th Mar. 1931 (Number of Visits 8) Gross 3489 Tons Net 2134

Master Built at Glasgow By whom built Barclay Curle & Co. Ltd. Yard No. When built 1909-3

Engines made at Glasgow By whom made Burmeister & Wain Oil Eng. Co. Engine No. When made 1914

Boilers made at Belfast By whom made Harland & Wolff Ltd. Boiler No. 5016/812 When made 1931

Nominal Horse Power Owners Bank Line Ltd. Port belonging to Glasgow.

MULTITUBULAR BOILERS MAIN, AUXILIARY, OR DONKEY.

Manufacturers of Steel Colville's Ltd. (Letter for Record S.)

Total Heating Surface of Boilers 995 sq ft Is forced draught fitted No. Coal or Oil fired Oil

No. and Description of Boilers One single ended Cylindrical Working Pressure 120 lbs

Tested by hydraulic pressure to 230 lbs Date of test 26-3-31 No. of Certificate 962 Can each boiler be worked separately

Area of Firegrate in each Boiler 30 sq ft No. and Description of safety valves to each boiler Two Spring-loaded Improved high lift.

Area of each set of valves per boiler per Rule 29.210 as fitted 6.280 Pressure to which they are adjusted 120 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 None in vicinity Is oil fuel carried in the double bottom under boilers No.

Smallest distance between shell of boiler and tank top plating 18" Is the bottom of the boiler insulated No.

Largest internal dia of boilers 11'0" mean length 10'0" Shell plates: Material Steel Tensile strength 28-32 tons

Thickness 3/32" Are the shell plates welded or flanged No. Description of riveting: circ. seams end double inter. Pitch of rivets 2.97" 5 1/2"

long. seams helix a.b.s. Diameter of rivet holes in circ. seams 15/16" long. seams 15/16" Percentage of strength of circ. end seams plate 68.4 rivets 58.1 Percentage of strength of circ. intermediate seam plate rivets

Percentage of strength of longitudinal joint plate 82.9 rivets 147.2 combined 95.3 Working pressure of shell by Rules 132.5 lbs

Thickness of butt straps outer 17/32" inner 21/32" No. and Description of Furnaces in each Boiler Two Morrison

Material Steel Tensile strength 26-30 tons Smallest outside diameter 36 3/8"

Length of plain part top bottom Thickness of plates crown bottom 7/16" Description of longitudinal joint weld.

Dimensions of stiffening rings on furnace or c.c. bottom Working pressure of furnace by Rules 169 lbs

End plates in steam space: Material Steel Tensile strength 26-30 tons Thickness 15/16" Pitch of stays 22 x 16"

How are stays secured double nuts & washers Working pressure by Rules 125 lbs

Tube plates: Material front Steel back Steel Tensile strength 26-30 tons Thickness 15/16" 3/4"

Mean pitch of stay tubes in nests 9 1/4" Pitch across wide water spaces 14 x 8" Working pressure front 233 lbs back 235 lbs

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

at centre 7 1/2" Length as per Rule 30" Distance apart 11" No. and pitch of stays in each 200-10" Working pressure by Rules 132 lbs

Tensile strength 26-30 tons Thickness: Sides 5/8" Back 19/32" Top 5/8" Bottom 5/8" Combustion chamber plates: Material Steel

Pitch of stays to ditto: Sides 11 x 8 3/4" Back 10 x 9" Top 11 x 10" Are stays fitted with nuts or riveted over nuts

Working pressure by Rules 122 lbs Front plate at bottom: Material Steel Tensile strength 26-30 tons

Thickness 15/16" Lower back plate: Material Steel Tensile strength 26-30 tons Thickness 15/16"

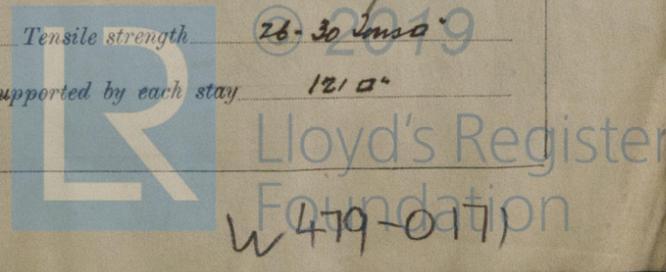
Pitch of stays at wide water space 13 x 10" Are stays fitted with nuts or riveted over nuts on top margin stays only.

Working Pressure 250 lbs Main stays: Material Steel Tensile strength 28-32 tons

Diameter At body of stay, Over threads 2 1/2" No. of threads per inch six Area supported by each stay 307.5 sq in

Working pressure by Rules 144 lbs Screw stays: Material Steel Tensile strength 26-30 tons

Diameter At turned off part, Over threads 1 5/8" No. of threads per inch ten Area supported by each stay 121 sq in



Working pressure by Rules *125 lbs* Are the stays drilled at the outer ends *No* Margin stays: Diameter *At turned off part, 1 3/8" - 1 1/2"*
 No. of threads per inch *ten* Area supported by each stay *129.75 sq" 126.50"* Working pressure by Rules *165 lbs 143 lbs*
 Tubes: Material *iron* External diameter *Plain 2 3/4" Stay 2 3/4"* Thickness *No. 8. 11. 1/2" - 1/4"* No. of threads per inch *nine*
 Pitch of tubes *4" x 4"* Working pressure by Rules *Main 275 lbs Stay 191 lbs* Manhole compensation: Size of opening in shell plate *16" x 12"* Section of compensating ring *McNeil 36" x 32" x 1/16"* No. of rivets and diameter of rivet holes *28 - 1 1/8"*
 Outer row rivet pitch at ends *9 1/2"* Depth of flange if manhole flanged *thickened to 3" depth* 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
 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 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 HARLAND AND WOLFF, LIMITED.
 Manufacturer

Dates of Survey *1931*
 During progress of work in shops *Feb 12, 16, 27 Mar 12, 14, 19, 26*
 while building *27*
 Are the approved plans of boiler and superheater forwarded herewith (If not state date of approval.)
 Total No. of visits *8*

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

GENERAL REMARKS (State quality of workmanship, opinions as to class, &c.)
*This boiler has been constructed under special survey and to an approved plan. The materials and workmanship are sound & good. It has been tested in accordance with the rules.
 This boiler has been installed and efficiently fastened in the vessel.
 The safety valves have been adjusted under steam to 120 lbs sq".*

Survey Fee £ *6 : 12 :* When applied for, *1st June 1931*
 Travelling Expenses (if any) £ : : When received, *23. 6. 31*

John K. Williams
 Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute **TUE. 16 JUN 1931**

Assigned *See other report Del 10627*



66P