

# REPORT ON BOILERS.

No. 2091

Received at London Office

1 NOV 1924

25<sup>th</sup> October 1924 When handed in at Local Office 29<sup>th</sup> October 1924 Port of Barrow-in-Furness

old at Barrow. Date, First Survey 8th January 1923. Last Survey 22nd October 1924

Turn screw steamer "Orama" (Number of Visits 15) Tons { Gross 19444 Net 11942

Built at Barrow By whom built Bickers Ltd. Yard No. 598 When built 1924

Barrow By whom made Bickers Ltd. Engine No. 598 When made 1924

Bo By whom made Bo Boiler No. 598 When made 1924

er 3856 Owners Orient Steam Navigation Co. Ltd. Port belonging to Barrow.

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

By Mr. Beardmore & Co. & David Colville & Co. Ltd. (Letter for Record (S) )

Number of Boilers (6 D.C.) 35448 Is forced draught fitted Yes Coal or Oil fired Oil

Number of Boilers 6 Double ended Cylindrical Multitubular. Working Pressure 215 lbs

Pressure to 215 lbs Date of test 25-12-23: 5-1-24 25-2-24: 11-3-24 25-3-24: 4-4-24 No. of Certificate 360, 361, 362 Can each boiler be worked separately Yes

Number of Firegrate in each Boiler 384 No. and Description of safety valves to each boiler 4000 Direct Spring loaded

Pressure of each set of valves per boiler { per Rule 32.10" as fitted 38.148 Pressure to which they are adjusted 219 lbs Are they fitted with easing gear Yes

Use of donkey boilers, state whether steam from main boilers can enter the donkey boiler

Least distance between boilers or uptakes and bunkers or woodwork 18" Is oil fuel carried in the double bottom under boilers Yes

Least distance between shell of boiler and tank top plating 21 1/2" Is the bottom of the boiler insulated Yes

Least internal dia. of boilers 16'-6" Length 22'-0" Shell plates: Material Steel Tensile strength 30 to 34 tons

Thickness 1 1/2" Are the shell plates welded or flanged No Description of riveting: circ. seams { end 14" lap inter. 4" lap

Seams 1/2" Double butt straps Diameter of rivet holes in { circ. seams 1 1/4 x 1 1/4 long. seams 1 1/4 Pitch of rivets { 10 1/2

Percentage of strength of circ. end seams { plate 60 rivets 49 Percentage of strength of circ. intermediate seam { plate 66.25 rivets 64.3

Percentage of strength of longitudinal joint { plate 87.5 rivets 85.1 combined 87.4 Working pressure of shell by Rules 215 lbs

Thickness of butt straps { outer 1 1/2 inner 1 1/2 No. and Description of Furnaces in each Boiler 8 Morison

Material Steel Tensile strength 26 to 30 tons Smallest outside diameter 41 3/4

Thickness of plain part { top 5/8 bottom 5/8 Description of longitudinal joint Weld

Dimensions of stiffening rings on furnace or c.c. bottom Working pressure of furnace by Rules 218 lbs

Plates in steam space: Material Steel Tensile strength 26 to 30 tons Thickness 1 5/32 Pitch of stays 16 3/4 x 16 1/2

Are stays secured Double nuts Working pressure by Rules 225 lbs

Plates: Material { front Steel Tensile strength { 26 to 30 tons Thickness { 1 1/8 back Steel Tensile strength { 26 to 30 tons Thickness { 1 5/16

Pitch of stay tubes in nests 12 3/4 x 8 1/2 Pitch across wide water spaces 13 3/4 Working pressure { front 231 lbs back 228 lbs

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

are 8" x 1 1/2 Length as per Rule 29 27/32 Distance apart 8" No. and pitch of stays

2 @ 10" Working pressure by Rules 240 lbs Combustion chamber plates: Material Steel

Strength 26 to 30 tons Thickness: Sides 2 3/32 Back 2 3/32 Top 2 3/32 Bottom 1 1/8

of stays to ditto: Sides 8" x 10" Back 10 5/16 x 7 7/8 Top 8" x 10" Are stays fitted with nuts or riveted over nuts

Working pressure by Rules 216 lbs Front plate at bottom: Material Steel Tensile strength 26 to 30 tons

Lower back plate: Material Steel Tensile strength 26 to 30 tons Thickness 1"

of stays at wide water space 14 1/2 dia. of each Are stays fitted with nuts or riveted over nuts

Working Pressure 219 lbs Main stays: Material Steel Tensile strength 28 to 35 tons

At body of stay, 2 3/4 No. of threads per inch 16 Area supported by each stay 276.3

Over threads Working pressure by Rules 237 lbs Screw stays: Material Steel Tensile strength 26 to 30 tons

At turned off part, 1 3/4 No. of threads per inch 16 Area supported by each stay 81.2

Over threads

W348-0019



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Working pressure by Rules 224 lb Are the stays drilled at the outer ends no ✓ Margin stays: Diameter { At turned off part, ✓  
or  
Over threads ✓

No. of threads per inch ✓ Area supported by each stay ✓ Working pressure by Rules ✓

Tubes: Material Iron ✓ External diameter { Plain 3" ✓  
Stay 3" ✓ Thickness { 8 hdl. ✓  
5/16 x 1/4 ✓ No. of threads per inch fine ✓

Pitch of tubes 4 1/4 x 4 1/4 ✓ Working pressure by Rules 224 lb ✓ Manhole compensation: Size of opening in  
shell plate 21 1/4 x 14 1/4 ✓ Section of compensating ring 32 1/4 x 40 1/4 x 1 1/2 flanged ✓ No. of rivets and diameter of rivet holes 36 — 19/16 ✓

Outer row rivet pitch at ends 10 1/2 ✓ Depth of flange if manhole flanged 4 1/4 ✓ 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 h. & marine type ✓ 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 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 4.06 sq ✓ Are the safety valves fitted with easing gear yes ✓ Working pressure as per  
Rules ✓ Pressure to which the safety valves are adjusted 220 lb ✓ Hydraulic test pressure:  
tubes ✓, castings ✓ and after assembly in place 430 lb ✓ Are drain cocks or valves fitted  
to free the superheater from water where necessary yes ✓

Have all the requirements of Sections 14 to 23 inclusive for boilers been complied with yes ✓

The foregoing is a correct description,  
W. Ballan Manufacturer.

Dates of Survey while building { During progress of work in shops - 1922-4.2.10.18.20.22.7.13.16.21.27. Mar 8. 20. 27.  
During erection on board vessel - 1922-4.2.10.18.20.22.7.13.16.21.27. Mar 8. 20. 27.  
Total No. of visits 75

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

GENERAL REMARKS (State quality of workmanship, opinions as to class, &c.) These boilers have been constructed in accordance with the approved plans and the Rules: the workmanship and materials are good. (Please see Machinery Report)

Survey Fee ... £ 192 When applied for, 192  
Travelling Expenses (if any) £ 192 When received, 192

W. Ballan  
Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute TUES. 4 NOV 1924

Assigned

