

REPORT ON BOILERS.

No. 2091

Received at London Office

-1 NOV 1924

Date of writing Report 25th October 1924 When handed in at Local Office 29th October 1924 Port of Barrow in Furness

No. in Survey held at Reg. Book.

Barrow.

Date, First Survey 28th January 1923 Last Survey 22nd October 1924

(Number of Visits 75)

Gross 19444

Tons Net 11942

49141 on the Twin screw steamer "Orama"

Master Built at Barrow By whom built Pickers L^d Yard No. 598 When built 1924
Engines made at Barrow By whom made Pickers L^d Engine No. 598 When made 1924
Boilers made at Do By whom made Do Boiler No. 598 When made 1924
Nominal Horse Power 3856 Owners Orient Steam Navigation Co L^d Port belonging to Barrow.

MULTITUBULAR BOILERS—MAIN, AUXILIARY, OR DONKEY.

Manufacturers of Steel Messrs Beardmore & Co & David Colville & Sons L^d (Letter for Record (S))

Total Heating Surface of Boilers (H.S.S.) 11484 sq ft Is forced draught fitted Yes Coal or Oil fired Oil

No. and Description of Boilers Four Single ended Cylindrical Multitubular 4 SB Working Pressure 215 lb

Tested by hydraulic pressure to 373 lb Date of test 11-4-24 No. of Certificate 354, 358 Can each boiler be worked separately Yes

Area of Firegrate in each Boiler 192 sq ft No. and Description of safety valves to each boiler Two Direct Spring loaded

Area of each set of valves per boiler {per Rule 16 sq in as fitted 19 sq 20 Pressure to which they are adjusted 219 lb 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 on upstake and bunkers on woodwork 18 in Is oil fuel carried in the double bottom under boilers Yes

Smallest distance between shell of boiler and tank top plating 2 1/2 in Is the bottom of the boiler insulated Yes

Largest internal dia. of boilers 16'-6 Length 11'-3 Shell plates: Material Steel Tensile strength 30 to 34 tons

Thickness 1 1/2 in Are the shell plates welded or flanged No Description of riveting: circ. seams {end Dr. lap inter. Yes

long. seams 1/4 Double butt straps Diameter of rivet holes in {circ. seams 1 9/16 long. seams 1 9/16 Pitch of rivets {4 in 10 in

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

Percentage of strength of longitudinal joint {plate 84.5 rivets 85.1 combined 84.4 Working pressure of shell by Rules 215 lb

Thickness of butt straps {outer 1 5/8 inner 1 9/8 No. and Description of Furnaces in each Boiler 4 CF H Morrison

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

Length of plain part {top bottom Thickness of plates {crown 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 lb

End plates in steam space: Material Steel Tensile strength 26 to 30 tons Thickness 1 5/8 in Pitch of stays 16 3/4 x 16 1/2

How are stays secured Double nuts Working pressure by Rules 225 lb

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

Mean 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 lb back 258 lb

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

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

in each 2 @ 10 Working pressure by Rules 240 lb Combustion chamber plates: Material Steel

Tensile strength 26 to 30 tons Thickness: Sides 23/32 Back 23/32 Top 23/32 Bottom 1/8

Pitch of stays to ditto: Sides 8 x 10 Back 10 5/8 x 4 1/8 Top 8 x 10 Are stays fitted with nuts or riveted over nuts

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

Thickness 1 in Lower back plate: Material Steel Tensile strength 26 to 30 tons Thickness 15/16

Pitch of stays at wide water space 14 3/8 x 4 1/8 Are stays fitted with nuts or riveted over nuts

Working Pressure 240 lb Main stays: Material Steel Tensile strength 28 to 35 tons

Diameter {At body of stay 2 3/4 Over threads No. of threads per inch Six Area supported by each stay 246.3 sq in

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

Diameter {At turned off part 1 3/4 Over threads No. of threads per inch Nine Area supported by each stay 81.2 sq in

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Working pressure by Rules 224 lb Are the stays drilled at the outer ends Yes Margin stays: Diameter { At turned off part, 2" or Over threads 2"
 No. of threads per inch none Area supported by each stay 97.3 Working pressure by Rules 255 lb
 Tubes: Material Iron External diameter { Plain 3" Stay 3" Thickness { 8 lb 5/16" No. of threads per inch none
 Pitch of tubes 14 1/4" Working pressure by Rules 250 lb Manhole compensation: Size of opening in shell plate 21 1/4" x 17 1/4" Section of compensating ring 3 1/4" x 4 1/4" x 1 1/2" flanged No. of rivets and diameter of rivet holes 36 — 1 1/4"
 Outer row rivet pitch at ends 10 1/2" Depth of flange if manhole flanged 1 1/4" Steam Dome: Material Iron
 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. G. 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 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,
J. Callender Manufacturer.
VICKERS LIMITED

			J. WICKERS, LIMITED,	
Dates of Survey while building	During progress of work in shops - -	1923 - Jan 8, 10, 15, 20, Feb 7, 13, 16, 22, 27, Mar 9, 20, 27, Apr 4, 10, 16, 23, 30, May 7, 14, 21, 28, June 4, 11, 18, 25, July 2, 9, 16, 23, 30, Aug 6, 13, 20, 27, Sept 3, 10, 17, 24, Oct 1, 8, 15, 22, Nov 5, 12, 19, 26, Dec 3, 10, 17, 24, 31, 1924 - Jan 7, 14, 21, 28, Feb 4, 11, 18, 25, Mar 4, 11, 18, 25, Apr 1, 8, 15, 22, May 6, 13, 20, 27, June 3, 10, 17, 24, July 1, 8, 15, 22, Aug 5, 12, 19, 26, Sept 2, 9, 16, 23, Oct 7, 14, 21, 28, Nov 4, 11, 18, 25, Dec 2, 9, 16, 23, 30, 1924	Are the approved plans of boiler and superheater forwarded herewith (If not state date of approval.)	
	During erection on board vessel - -	1923 - Jan 8, 10, 15, 20, Feb 7, 13, 16, 22, 27, Mar 9, 20, 27, Apr 4, 10, 16, 23, 30, May 7, 14, 21, 28, June 4, 11, 18, 25, July 2, 9, 16, 23, 30, Aug 6, 13, 20, 27, Sept 3, 10, 17, 24, Oct 1, 8, 15, 22, Nov 5, 12, 19, 26, Dec 3, 10, 17, 24, 31, 1924 - Jan 7, 14, 21, 28, Feb 4, 11, 18, 25, Mar 4, 11, 18, 25, Apr 1, 8, 15, 22, May 6, 13, 20, 27, June 3, 10, 17, 24, July 1, 8, 15, 22, Aug 5, 12, 19, 26, Sept 2, 9, 16, 23, Oct 7, 14, 21, 28, Nov 4, 11, 18, 25, Dec 2, 9, 16, 23, 30, 1924	Total No. of visits 75	

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

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

Committee's Minute TUES. 4 NOV 1924

Assigned