

# REPORT ON BOILERS.

Received at London Office

JUL -3 1940

Date of writing Report 25/6/1940 When handed in at Local Office 25/6/1940 Port of Greenock

No. in Reg. Book. Survey held at Greenock Date, First Survey 20<sup>th</sup> JULY 1939 Last Survey 21<sup>st</sup> JUNE 1940

on the CAPE WRATH

(Number of Visits ) Gross 4512 Tons Net 2672

Master Built at Port Glasgow By whom built Messrs Lithgows Ltd. Yard No. 934 When built 1940  
 Engines made at Greenock By whom made Messrs Rankin & Blackmore Ltd Engine No. 464 When made 1940  
 Boilers made at " By whom made " Boiler No. 464 When made 1940  
 Nominal Horse Power 448 Owners LYLE SHIPPING CO. LD. Port belonging to GLASGOW

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

Manufacturers of Steel Messrs. Colvilles Ltd. (Letter for Record 5)  
 Total Heating Surface of Boilers 4976 sq ft Is forced draught fitted Yes Coal or Oil fired Both  
 No. and Description of Boilers 2 S.E. Multitubular Working Pressure 220 lbs  
 Tested by hydraulic pressure to 380 lbs Date of test 20/12/39 No. of Certificate 2200 Can each boiler be worked separately Yes  
 Area of Firegrate in each Boiler 52.5 sq ft No. and Description of safety valves to each boiler 2 S.L. Cockscrew Improved high lift  
 Area of each set of valves per boiler {per Rule 8.00" as fitted 9.80" Pressure to which they are adjusted 220 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 5'-0" Is oil fuel carried in the double bottom under boilers Yes  
 Smallest distance between shell of boiler and tank top plating 2'-0" Is the bottom of the boiler insulated Yes  
 Largest internal dia. of boilers 15'-1 1/2" Length 12'-0" Shell plates: Material S Tensile strength 29/33 tons  
 Thickness 1 1/2" Are the shell plates welded or flanged No. Description of riveting: circ. seams {end O.R. inter. —}  
 long. seams T.R.O.B.S. Diameter of rivet holes in {circ. seams 1 1/2" long. seams —} Pitch of rivets { 4.1065" 10.34" }  
 Percentage of strength of circ. end seams {plate 63.4 rivets 45.6} Percentage of strength of circ. intermediate seam {plate 85.4 rivets 84.6}  
 Percentage of strength of longitudinal joint {plate 85.4 rivets 84.6 combined 87.7} Working pressure of shell by Rules 226 lbs  
 Thickness of butt straps {outer 1 3/16" inner 1 5/16"} No. and Description of Furnaces in each Boiler 3 Deighton Section.  
 Material S. Tensile strength 26/30 tons Smallest outside diameter 3'-9 3/8"  
 Length of plain part {top — bottom —} Thickness of plates {crown 11/16" bottom —} Description of longitudinal joint Weld.  
 Dimensions of stiffening rings on furnace or c.c. bottom Working pressure of furnace by Rules 222 lbs.  
 End plates in steam space: Material S. Tensile strength 26/30 tons Thickness 1 3/8" Pitch of stays 20" x 22"  
 How are stays secured Double nuts and Washers. Working pressure by Rules 222 lbs  
 Tube plates: Material {front S. back S.} Tensile strength { 26/30 tons } Thickness { 1" }  
 Mean pitch of stay tubes in nests 10 1/2" Pitch across wide water spaces 14 1/2" Working pressure {front 248 lbs back 233 lbs.}  
 Girders to combustion chamber tops: Material S. Tensile strength 29/33 tons Depth and thickness of girder  
 at centre 11 1/2" x 1 5/8" Length as per Rule 38 3/8" Distance apart 10 1/4" No. and pitch of stays  
 in each 3 - 9 1/4" Working pressure by Rules 223 lbs. Combustion chamber plates: Material S.  
 Tensile strength 26/30 tons Thickness: Sides 25/32" Back 25/32" Top 25/32" Bottom 7/8"  
 Pitch of stays to ditto: Sides 9 1/4" x 10 1/4" Back 9 1/2" x 9" Top 10 1/4" x 9 1/4" Are stays fitted with nuts or riveted over Nuts  
 Working pressure by Rules 221 lbs. Front plate at bottom: Material S. Tensile strength 26/30 tons.  
 Thickness 1" Lower back plate: Material S. Tensile strength 26/30 tons Thickness 15/16"  
 Pitch of stays at wide water space 14 1/2" Are stays fitted with nuts or riveted over Nuts  
 Working Pressure 231 lbs Main stays: Material S. Tensile strength 28/32 tons  
 Diameter {At body of stay, or 3 3/8" Over threads —} No. of threads per inch 6 Area supported by each stay 390 sq in  
 Working pressure by Rules 224 lbs. Screw stays: Material S. Tensile strength 26/30 tons  
 Diameter {At turned off part, or 2" Over threads —} No. of threads per inch 9 Area supported by each stay 89.2 sq in

Working pressure by Rules **277 lbs** Are the stays drilled at the outer ends **No** Margin stays: Diameter **2"** At turned off part, or Over threads  
 No. of threads per inch **9** Area supported by each stay **109 sq"** Working pressure by Rules **227 lbs**  
 Tubes: Material **W. I.** External diameter **3"** Thickness **5/16" & 3/8"** No. of threads per inch **9**  
 Pitch of tubes **4 1/8" x 4 1/4"** Working pressure by Rules **250 lbs** Manhole compensation: Size of opening in shell plate **16" x 12"** Section of compensating ring **3-1/4" x 2-1/4" x 1/2"** No. of rivets and diameter of rivet holes **32-1/2"**  
 Outer row rivet pitch at ends **10 1/32"** Depth of flange if manhole flanged  
 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 doubting plate under dome Diameter of rivet holes and pitch

Type of Superheater **Smokestack type** Manufacturers of **Mission. The Superheater Co Ltd**  
 Number of elements **106** Material of tubes **S.O. steel** Internal diameter and thickness of tubes **17 m/m x 2 1/2 m/m**  
 Material of headers **steel** Tensile strength Thickness **5/8"** 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 **3.14 sq"** Are the safety valves fitted with easing gear **Yes** Working pressure as per Rules **220 lbs** Pressure to which the safety valves are adjusted **220 lbs** Hydraulic test pressure: tubes **1000 lbs/sq"** forgings and castings **660 lbs** and after assembly in place **550 lbs** Are drain cocks or valves fitted to free the superheater from water where necessary **Yes**  
 Have all the requirements of Sections 14 to 22 inclusive for boilers been complied with

The foregoing is a correct description,  
**RANKIN & BLACKMOORE DTB.** Manufacturer.  
**Advised** Managing Dir

Dates of Survey During progress of work in shops - - - while building During erection on board vessel - - -  
**SEE MACHINERY REPORT** Are the approved plans of boiler and superheater forwarded herewith (If not state date of approval.)  
 Total No. of visits

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

**GENERAL REMARKS** (State quality of workmanship, opinions as to class, &c.) **These boilers have been built under Special Survey, in accordance with the approved plan. The materials and workmanship are good. For recommendation, please see Machinery Report.**

Survey Fee ... **Changed in Machinery Report** When applied for, **19**  
 Travelling Expenses (if any) £ ... When received, **19**

**M. Caldwell.**  
 Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute **GLASGOW** **2 JUL 1940**  
 Assigned **SEE ACCOMPANYING MACHINERY REPORT.**

