

REPORT ON BOILERS.

Received at London Office

JUL 3 1940

Date of writing Report 25/6/40 When handed in at Local Office 25/6/40 Port of Greenock

No. in Reg. Book. Greenock Date, First Survey 20th July 1939 Last Survey 24th June 1940

on the "CAPE WRATH"

(Number of Visits) Gross Tons 4512 Net Tons 2672

Master Greenock Built at Pont 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 Greenock By whom made Messrs. Rankin & Blackmore Ltd. 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 S.)

Total Heating Surface of Boilers 1576 sq. ft. Is forced draught fitted Yes. Coal or Oil fired Both.

No. and Description of Boilers One - 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 45 sq. ft. No. and Description of safety valves to each boiler 2 S.L. Cockburns Impounding High Lift

Area of each set of valves per boiler { per Rule 4'0" 0" as fitted 4'8" 0" 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 Yes

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 12'9 3/8" Length 10'6" Shell plates: Material S. Tensile strength 29/33 tons

Thickness 1 5/16" Are the shell plates welded or flanged No. Description of riveting: circ. seams { end O.R. inter. Yes

long. seams T.R.O.B.S. Diameter of rivet holes in { circ. seams 1 3/8" Pitch of rivets { 4'05" 9'5"

Percentage of strength of circ. end seams { plate 66.2 rivets 44.25 Percentage of strength of circ. intermediate seam { plate 85.5 rivets 88.5

Percentage of strength of longitudinal joint { plate 85.5 rivets 88.5 combined 88.7 Working pressure of shell by Rules 234 lbs.

Thickness of butt straps { outer 1" inner 1 1/8" No. and Description of Furnaces in each Boiler 3 Corrugated Right-Hand Section

Material S. Tensile strength 26/30 tons Smallest outside diameter 3'0 1/8"

Length of plain part { top 9" bottom 9" Thickness of plates { crown 9/16" bottom 9/16" Description of longitudinal joint Weld.

Dimensions of stiffening rings on furnace or c.c. bottom None Working pressure of furnace by Rules 226 lbs.

End plates in steam space: Material S. Tensile strength 26/30 tons Thickness 1 5/16" Pitch of stays 17" x 20 3/4"

How are stays secured O.N.s and Washers Working pressure by Rules 224 lbs.

Tube plates: Material { front S. back S. Tensile strength { 26/30 tons Thickness { 25/32" 228 lbs

Mean pitch of stay tubes in nests 9 1/4" Pitch across wide water spaces 14" Working pressure { front 228 lbs back 234 lbs

Girders to combustion chamber tops: Material S. Tensile strength 29/33 tons Depth and thickness of girder

at centre 9 3/4" x 1 3/8" Length as per Rule 31 15/32" Distance apart 8 3/4" No. and pitch of stays

in each 3-8 1/2" Working pressure by Rules 243 lbs. Combustion chamber plates: Material S.

Tensile strength 26/30 tons. Thickness: Sides 23/32" Back 3/4" Top 23/32" Bottom 7/8"

Pitch of stays to ditto: Sides 9 1/8" x 8 1/2" Back 9 1/4" x 8 1/2" Top 8 3/4" x 8 1/2" Are stays fitted with nuts or riveted over Nuts.

Working pressure by Rules 231 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 29/32"

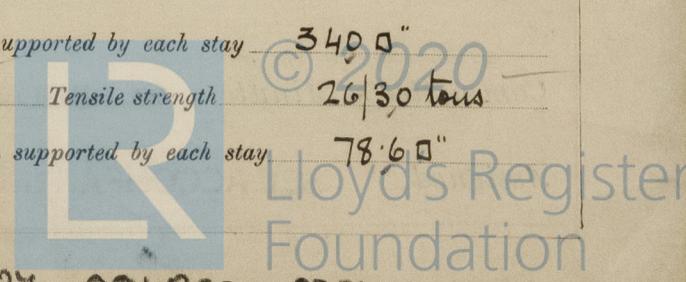
Pitch of stays at wide water space 14 1/4" Are stays fitted with nuts or riveted over Mangus nuts - others riveted

Working Pressure 233 lbs Main stays: Material S. Tensile strength 28/32 tons

Diameter { At body of stay, 3 1/4" No. of threads per inch 6 Area supported by each stay 340 sq. in.

Working pressure by Rules 236 lbs Screw stays: Material S. Tensile strength 26/30 tons

Diameter { At turned off part, 1 3/4" No. of threads per inch 9 Area supported by each stay 78.6 sq. in.



Working pressure by Rules **234 lbs** Are the stays drilled at the outer ends **No.** Margin stays: Diameter ^{At turned off part,} **2"** _{or} ^{Over threads} **2"**
 No. of threads per inch **9** Area supported by each stay **105.250"** Working pressure by Rules **235 lbs**
Tubes: Material **S.** External diameter ^{Plain} **3"** Thickness ^{8 W.G.} **5/16"** ^{6 3/8"} No. of threads per inch **9**
 Pitch of tubes **4 1/8" x 4 1/8"** Working pressure by Rules **250 lbs** Manhole compensation: Size of opening in shell plate **16" x 12"** Section of compensating ring **2'-5" x 2'-9" x 1 5/16"** No. of rivets and diameter of rivet holes **28 - 1 3/8"**
 Outer row rivet pitch at ends **9 1/2"** 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
 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 forgings} _{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 forgings and 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,
RANKIN & BLACKMORE LTD., Manufacturer.
H. H. ... Managing Director

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.) **This boiler Larkun 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 on 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.**

