

REPORT ON BOILERS.

No. 20891.

Received at London Office

JAN 24 1940

Date of writing Report 17/1/40 When handed in at Local Office 18/1/40 Port of GREENOCK

No. in Survey held at GREENOCK Date, First Survey 10th APRIL 1939 Last Survey 17th JANUARY 1940

on the TEMPLE ARCH. (Number of Visits ✓) Tons {Gross 5138.19 Net 3039.37}

Master Built at GREENOCK By whom built MESSRS. LITHGOWS. LD. Yard No. 929. When built 1940-1

Engines made at GREENOCK By whom made MESSRS. RANKIN & BLACKMORE. LD. Engine No. 462. When made 1940

Boilers made at " " By whom made " " Boiler No. 462. When made 1940

Nominal Horse Power 482. Owners TEMPLE. S.S. CO LD. Port belonging to LONDON

MULTITUBULAR BOILERS - MAIN, AUXILIARY, OR DONKEY

Manufacturers of Steel Messers Covilles Ltd. (Letter for Record S)

Total Heating Surface of Boilers 5508 sq. Is forced draught fitted Yes. Coal or Oil fired Coal.

No. and Description of Boilers Two. Single Ended. Cylindrical. Working Pressure 230 lbs/sq. in.

Tested by hydraulic pressure to 395 lbs. Date of test 5/9/39. No. of Certificate 2195. Can each boiler be worked separately Yes.

Area of Firegrate in each Boiler 58.75 sq. ft. No. and Description of safety valves to each boiler 2. S.L. Cockburn's Improved High Lift.

Area of each set of valves per boiler {per Rule 84.0" as fitted 11.860" Pressure to which they are adjusted 230 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 21" Is oil fuel carried in the double bottom under boilers No.

Smallest distance between shell of boiler and tank top plating 26" Is the bottom of the boiler insulated Yes.

Largest internal dia. of boilers 16'-0" Length 11'-6" Shell plates: Material Steel Tensile strength 29/33 tons

Thickness 1 5/8" Are the shell plates welded or flanged No. Description of riveting: circ. seams {end DR inter. -}

Direction of seams T.R.D.B.S. Diameter of rivet holes in {circ. seams 1 5/8" long. seams -} Pitch of rivets {4.344" 10.656"}

Percentage of strength of circ. end seams {plate 62.59. rivets 46.5.} Percentage of strength of circ. intermediate seam {plate 84.8. rivets 89.}

Percentage of strength of longitudinal joint {plate 84.8. rivets 89. combined 87.3} Working pressure of shell by Rules 233 lbs/sq. in.

Thickness of butt straps {outer 1 1/4" inner 1 3/8" No. and Description of Furnaces in each Boiler 3. Deighton Section.

Material Steel. Tensile strength 26/30 tons. Smallest outside diameter 3'-11 1/2"

Length of plain part {top - bottom -} Thickness of plates {crown 3/4" bottom 3/4" Description of longitudinal joint Weld.

Dimensions of stiffening rings on furnace or c.c. bottom Working pressure of furnace by Rules 232 lbs/sq. in.

End plates in steam space: Material Steel Tensile strength 26/30 tons. Thickness 1 5/32" Pitch of stays 20" x 21 3/4"

How are stays secured D.N.s. & W's Working pressure by Rules 233 lbs/sq. in.

Tube plates: Material {front Steel back Steel} Tensile strength {26/30 tons. Thickness {1 5/32" 25/32"}

Lean pitch of stay tubes in nests 9.375" Pitch across wide water spaces 14" Working pressure {front 25 lbs/sq. in. back 234 lbs/sq. in.}

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

centre 10 1/4" x 1 1/2" Length as per Rule 34 15/32" Distance apart 9" No. and pitch of stays

each 3-8 1/2" Working pressure by Rules 240 lbs/sq. in. Combustion chamber plates: Material Steel

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 8 1/2" x 9 1/4" Top 8 1/2" x 9" Are stays fitted with nuts or riveted over Nuts

Working pressure by Rules 231 lbs/sq. in. Front plate at bottom: Material Steel Tensile strength 26/30 tons.

Thickness 1 1/32" Lower back plate: Material Steel Tensile strength 26/30 tons. Thickness 29/32"

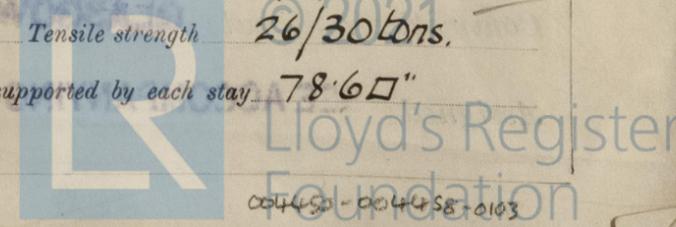
Pitch of stays at wide water space 14 1/4" x 9 1/4" Are stays fitted with nuts or riveted over Nuts.

Working Pressure 233 lbs Main stays: Material Steel Tensile strength 28/32 Tons.

Diameter {At body of stay, 10-3 5/8" or Over threads, 2-3 1/4" No. of threads per inch 6 Area supported by each stay 4.350"

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

Diameter {At turned off part, 1 3/4" or Over threads, - No. of threads per inch 9 Area supported by each stay 78.60"



Working pressure by Rules **231/lbs.** Are the stays drilled at the outer ends **No.** Margin stays: Diameter $\left\{ \begin{array}{l} \text{At turned off part,} \\ \text{or} \\ \text{Over threads} \end{array} \right. \mathbf{2''}$
 No. of threads per inch **9** Area supported by each stay **108 sq"** Working pressure by Rules **233/lbs.**
Tubes: Material **Steel.** External diameter $\left\{ \begin{array}{l} \text{Plain} \\ \text{Stay} \end{array} \right. \mathbf{3''}$ Thickness $\left\{ \begin{array}{l} \text{8 W.G.} \\ \text{5/16" 3/8"} \end{array} \right.$ No. of threads per inch **9**
 Pitch of tubes **4 1/4" x 4 1/8"** Working pressure by Rules **250/lbs.** Manhole compensation: Size of opening
 shell plate **16" x 12"** Section of compensating ring **2'5" x 2'9" x 1 5/8"** No. of rivets and diameter of rivet holes **28 - 1 5/8"**
 Outer row rivet pitch at ends **10 21/32"** 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 $\left\{ \begin{array}{l} \text{Plate} \\ \text{Rivets} \end{array} \right.$
 Internal diameter Working pressure by Rules Thickness of crown No. and diameter
 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 **North Eastern Smoke-tube Type** Manufacturers of $\left\{ \begin{array}{l} \text{Tubes} \\ \text{Steel forgings} \\ \text{Steel castings} \end{array} \right. \begin{array}{l} \text{Messrs Talbot Stead} \\ \text{Frodingham Steel Co.} \end{array}$
 Number of elements **116** Material of tubes **S.O. Steel.** Internal diameter and thickness of tubes **17 x 2 1/2 M/m.**
 Material of headers **Forged Steel.** Tensile strength **26/30 tons.** Thickness **7/8"** Can the superheater be shut off
 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 casing gear **Yes.** Working pressure as per
 Rules **230/lbs./sq"** Pressure to which the safety valves are adjusted **230 lbs/sq"** Hydraulic test pressure
 tubes **1500 lbs/sq"** forgings and castings **690 lbs/sq"** and after assembly in place **575 lbs./sq"** Are drain cocks
 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 **Yes.**

The foregoing is a correct description,
RANKIN & BLACKMORE, LTD., Manufacturer
A. J. ... Managing Director.

Dates of Survey $\left\{ \begin{array}{l} \text{During progress of} \\ \text{work in shops - -} \\ \text{while} \\ \text{building} \end{array} \right. \left\{ \begin{array}{l} \text{During erection on} \\ \text{board vessel - - -} \end{array} \right.$
ON 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 **Yes.** If so, state Vessel's name and Report No. **"DORNOCH." GRK. No 20698.**

GENERAL REMARKS (State quality of workmanship, opinions as to class, &c.) *These boilers have been built under Special Survey in accordance with the approved plans. 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 23 JAN 1940**

Assigned **SEE ACCOMPANYING MACHINERY REPORT.**

