

REPORT ON BOILERS

No. 81934

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No. of writing Report **24-2** 1921 When handed in at Local Office **24 FEB 1921** Port of **LIVERPOOL**
 No. in Survey held at **Burkenhead** Date, First Survey **May 19th 1920** Last Survey **Feb 23rd 1921**
 Reg. Book. on the **Messrs H.C. Grayson's Vessel No 110, s/s "Carpio"** (Number of Visits **17**) Gross Tons }
 Master Built at **Garston** By whom built **Messrs H.C. Grayson & Co** When built }
 Engines made at By whom made When made }
 Boilers made at **Burkenhead** By whom made **Cammell Laird & Co Ltd** When made **1921**.
 Registered Horse Power Owners Port belonging to

MULTITUBULAR BOILERS ~~MAIN, AUXILIARY OR DONKEY.~~ — Manufacturers of Steel **David Colville Sons**
Letter for record **S**) **Total Heating Surface of Boilers** **820 sq ft** Is forced draft fitted **No. and Description of**
Boilers **One Cylindrical Multitubular (S.B.)** Working Pressure **180 lbs.** Tested by hydraulic pressure to **360 lbs** Date of test **9 VII 20**
No. of Certificate **2131**. Can each boiler be worked separately **Area of fire grate in each boiler** **27 sq ft** No. and Description of
Safety valves to each boiler **2 inc No. Spring loaded.** Area of each valve **3.14 sq in** Pressure to which they are adjusted
 Are they fitted with easing gear 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 **Inside** dia. of boilers **10'-0"** Length **9'-6"**
 Material of shell plates **Steel**. Thickness **3 27/32"** Range of tensile strength **28-32 tons** Are the shell plates welded or flanged **No**
 Description of riveting: cir. seams **D.R. lap.** long. seams **T.R. Double Strap** Diameter of rivet holes in long. seams **15/16"** Pitch of rivets **6 5/8"**
 Gap of plates or width of butt straps **14"** Per centages of strength of longitudinal joint rivets **92.25%** Working pressure of shell by plate **85.84%**
 Rules **181 lbs.** Size of manhole in shell **16" x 12"** Size of compensating ring **McNeil's 2 29/32" thick** No. and Description of Furnaces in each boiler **2 Morrison's with material Steel**
 Description of longitudinal joint **Welded** No. of strengthening rings **✓** Working pressure of furnace by the rules **188 5/8** Combustion chamber plates: Material **Steel** Thickness: Sides **1/8"** Back **1/8"** Top **1/8"** Bottom **1/8"** Pitch of stays to ditto: Sides **9" x 9 1/2"** Back **9" x 10"**
 Top **9 1/2" x 9 1/2"** If stays are fitted with nuts or riveted heads **Nuts** Working pressure by rules **180.7 1/2** Material of stays **Steel** Area at smallest part **2.03 sq in** Area supported by each stay **90.25 sq in** Working pressure by rules **202 1/2** End plates in steam space: Material **Steel** Thickness **3/32"**
 Pitch of stays **14 1/2" x 16"** How are stays secured **Nuts & Washers** Working pressure by rules **191 lbs** Material of stays **Steel** Area at smallest part **4.11 sq in**
 Area supported by each stay **232 sq in** Working pressure by rules **184.5 1/2** Material of Front plates at bottom **Steel** Thickness **3/32"** Material of lower back plate **Steel** Thickness **3/32"** Greatest pitch of stays **14" x 9"** Working pressure of plate by rules **234 lbs** Diameter of tubes **5" ext.**
 Pitch of tubes **4 1/4" x 4 1/8"** Material of tube plates **Steel** Thickness: Front **3/32"** Back **3/4"** Mean pitch of stays **10 1/2"** Pitch across wide water spaces **14"** Working pressures by rules **184 lbs** Girders to Chamber tops: Material **Steel** Depth and thickness of girder at centre **6 5/8" x 1 3/4"** Length as per rule **26 1/8"** Distance apart **9 1/2"** Number and pitch of Stays in each **2 in No - 9 1/2"**
 Working pressure by rules **186.5 1/2** Steam dome: description of joint to shell _____ % of strength of joint _____
 Diameter _____ Thickness of shell plates _____ Material _____ Description of longitudinal joint _____ Diam. of rivet holes _____
 Pitch of rivets _____ Working pressure of shell by rules _____ Crown plates _____ Thickness _____ How stayed _____

SUPERHEATER. Type **✓** Date of Approval of Plan **✓** Tested by Hydraulic Pressure to **✓**
 Date of Test **✓** Is a Safety Valve fitted to each Section of the Superheater which can be shut off from the Boiler **✓**
 Diameter of Safety Valve **✓** Pressure to which each is adjusted **✓** Is Easing Gear fitted **✓**

The foregoing is a correct description,
J. W. Dykes Manufacturer.
CAMMELL LAIRD & COMPANY, LIMITED.

Dates of Survey **During progress of** **May 19, 26, June 4, 12, 13, 23, 24, 29, July 2, 8, 9, 16, 17, Aug 20, Oct 6, 14.** Is the approved plan of boiler forwarded herewith **Yes**
 while building **During erection on board vessel - - -** Total No. of visits **17**

GENERAL REMARKS (State quality of workmanship, opinions as to class, &c.)
This Boiler has now been built under Special Survey and is in accordance with the approved plan & Secretary's letter (E) dated 30th December 1919. The workmanship & materials are good and when tested to twice the working pressure, it was found satisfactory in every respect.

Survey Fee £ **4 : 4 : -** } When applied for, **24 FEB 1921**
 Travelling Expenses (if any) £ : : } When received, **5-4-21**

Committee's Minute **LIVERPOOL 25 FEB 1921**
 Assigned **Transmit to London. Mr. J. W. Dykes**
John Dykes Engineer Surveyor to Lloyd's Register of Shipping.

