

(Boiler No 2040)  
**REPORT ON BOILERS.**

No. 81925  
SAT. 26 FEB. 1921

Received at London Office

24 FEB 1921

pt. 5a.

Date of writing Report **24 2 1921** When handed in at Local Office **19** Port of **LIVERPOOL**  
No. in Survey held at **Birkenhead** Date, First Survey **Dec 17<sup>th</sup> / 1919** Last Survey **Feb 23<sup>rd</sup> 1921**  
Reg. Book. on the **Men H.C. Grayson's Tug No 110 s/s "Barrio"** (Number of Visits **41**) Gross Tons }  
Master Built at **Garsdon** By whom built **H.C. Grayson & Co.** When built  
Engines made at By whom made When made  
Boilers made at **Birkenhead** 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 & Co. Newcastle**  
Letter for record **S.** Total Heating Surface of Boilers **4550** Is forced draft fitted **No** No. and Description of  
Boilers **Two cylindrical multitubular S.B. Working Pressure 180 lbs** Tested by hydraulic pressure to **360 lbs** Date of test **18/3/20, 25/3/20**  
No. of Certificate **2113, 2116** Can each boiler be worked separately **Area of fire grate in each boiler 59 sq ft** No. and Description of  
Safety valves to each boiler **Two - Spring loaded** Area of each valve **5.94 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 14'-9" Length 11'-5 1/2"**  
Material of shell plates **Steel** Thickness **1 1/8"** Range of tensile strength **28-32 tons** Are the shell plates welded or flanged **No**  
Descrip. of riveting: cir. seams **D.R. lap** long. seams **T.R. D. Shops** Diameter of rivet holes in long. seams **1 1/4"** Pitch of rivets **8 3/4"**  
Gap of plates or width of butt straps **18 3/8"** Per centages of strength of longitudinal joint rivets **88%** Working pressure of shell by  
rules **181 lbs** Size of manhole in **End 16" x 12"** Size of compensating ring **Dished** No. and Description of Furnaces in each  
Boiler **3 Morrison's Suspension Material Steel** Outside diameter **47"** Length of plain part **top 9' 6" bottom 9' 6"** Thickness of plates **crown 9" bottom 1 1/8"**  
Description of longitudinal joint **Weld** No. of strengthening rings **✓** Working pressure of furnace by the rules **187 lbs** Combustion chamber  
plates: Material **Steel** Thickness: Sides **3/32"** Back **1/16"** Top **3/32"** Bottom **3/32"** Pitch of stays to ditto: Sides **10 1/2" x 9"** Back **9 1/2" x 9 1/2"**  
Top **10 1/2" x 9 1/4"** If stays are fitted with nuts or riveted heads **Nuts** Working pressure by rules **180 1/2 lbs** Material of stays **Steel** Area at  
smallest part **2.03 sq ft** Area supported by each stay **97.125 sq in** Working pressure by rules **188 lbs** End plates in steam space: Material **Steel** Thickness **1 1/2"**  
Pitch of stays **21 1/2" x 20"** How are stays secured **Double Nuts Washers** Working pressure by rules **180 lbs** Material of stays **Steel** Area at smallest part **7.85 sq ft**  
Area supported by each stay **430 sq in** Working pressure by rules **189 lbs** Material of Front plates at bottom **Steel** Thickness **1 1/2"** Material of  
lower back plate **Steel** Thickness **3/2"** Greatest pitch of stays **14 1/4" x 9 1/2"** Working pressure of plate by rules **222 lbs** Diameter of tubes **3 1/4" ext.**  
Pitch of tubes **4 1/2" x 4 3/8"** Material of tube plates **Steel** Thickness: Front **1 1/2"** Back **1 1/8"** Mean pitch of stays **11 1/8"** Pitch across wide  
water spaces **14 1/4"** Working pressures by rules **187 lbs** Girders to Chamber tops: Material **Steel** Depth and thickness of  
order at centre **2 in No 14 x 3/4"** Length as per rule **28 1/2"** Distance apart **9 1/4"** Number and pitch of Stays in each **2 in No 10 1/2"**  
Working pressure by rules **202 lbs** 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,

**CAMMELL LAIRD AND COMPANY LIMITED**

Manufacturer.

Dates During progress of work in shops - - -  
Survey while building During erection on board vessel - - -  
1919 1920  
Dec 17, Jan 21, Feb 2, 11, 17, 24, Mar 24, 10, 11, 17, 18, 24, 25, 30, Apr 9, 21, 30, May 6, 11, 19, 26, June 3,  
11, 17, 18, 24, 25, 29, July 2, 7, 16, 17, 20, Aug 26, Oct 11, Jan 26, Feb 1, 2, 23.

Is the approved plan of boiler forwarded herewith

Total No. of visits **41**

LOCAL SECRETARY.

Yes.

**GENERAL REMARKS** (State quality of workmanship, opinions as to class, &c.) **This boiler has now been built under Special Survey & in accordance with the approved plan & Secretary's letter (E) dated 28<sup>th</sup> July 1919. The workmanship & materials are of good quality, and when tested to twice the working pressure was found satisfactory in every respect.**

Survey Fee ... £ **27 : 13** : **14** : **14** :  
Travelling Expenses (if any) £ : :  
When applied for, **24 FEB 1921**  
When received, **5.4.21**  
**John Dykes & High**  
**John Dykes & High**  
Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute **LIVERPOOL 25 FEB 1921**  
Assigned **Transmit to London. Mr.**

002000-002012-0218

Lloyd's Register  
Foundation