

Rpt. 4.

## REPORT ON MACHINERY.

No. 69780

10 APR 1917

Received at London Office

WED 11 APR 1917

Date of writing Report 3<sup>rd</sup> April 1917. When handed in at Local Office

10

Port of Newcastle on Tyne

No. in Survey held at Newcastle on Tyne

Date, First Survey 22<sup>nd</sup> Oct 1916Last Survey 2<sup>nd</sup> Apr 1917

Reg. Book.

on the STEAMER "LITHIUM."

(Number of Vents 26)

Gross 340

Net

When built 1914

Master Built at Selby By whom built Coltrane Sons, Ltd.

Engines made at North Shields By whom made Shields Eng. &amp; Ship Rep. Co. Ltd. when made 1914

Boilers made at Hebburn on Tyne By whom made Palmers 213 &amp; 4 Co. Ltd. when made 1914

Registered Horse Power Owners United Alkali Co. Ltd. Port belonging to Liverpool

Nom. Horse Power as per Section 28 69 Is Refrigerating Machinery fitted for cargo purposes No Is Electric Light fitted No

## ENGINES, &amp;c.—Description of Engines

No. of Cylinders 4

No. of Cranks 4

Dia. of Cylinders 12-20-24 Length of Stroke 24 Revs. per minute 106 Dia. of Screw shaft 7.33 as per rule 7.33 as fitted 7.33 Material of screw shaft Steel

Is the screw shaft fitted with a continuous liner the whole length of the stern tube Yes Is the after end of the liner made water tight in the propeller boss Yes If the liner is in more than one length are the joints burned or lapped If the liner does not fit tightly at the part between the bearings in the stern tube, is the space charged with a plastic material insoluble in water and non-corrosive If two liners are fitted, is the shaft lapped or protected between the liners Length of stern bush 2' 3"

Dia. of Tunnel shaft 6.31 as per rule 6.31 as fitted 6.31 Dia. of Crank shaft journals 4.52 as per rule 4.52 as fitted 4.52 Dia. of Crank pin 7" Size of Crank webs 4" x 13" Dia. of thrust shaft under collars 7" Dia. of screw 9' 6" Pitch of Screw 9' 3" 6' 10' 3" No. of Blades 4 State whether moveable No Total surface 3159 sq. ft.

No. of Feed pumps 2 Diameter of ditto 24 Stroke 12 Can one be overhauled while the other is at work Yes

No. of Bilge pumps 2 Diameter of ditto 24 Stroke 12 Can one be overhauled while the other is at work Yes

No. of Donkey Engines one Sizes of Pumps 6" 4" 6" No. and size of Suctions connected to both Bilge and Donkey pumps

In Engine Room One 2 1/2" dia. In Hold, &amp;c. Two 2 1/2" dia.

No. of Bilge Injections 1 sizes 3 Connected to condenser, or to circulating pump C.P. Is a separate Donkey Suction fitted in Engine room &amp; size Yes 2 1/2"

Are all the bilge suction pipes fitted with roses Yes Are the roses in Engine room always accessible Yes Are the sluices on Engine room bulkheads always accessible Yes

Are all connections with the sea direct on the skin of the ship Yes Are they Valves or Cocks Both

Are they fixed sufficiently high on the ship's side to be seen without lifting the stokehold plates Yes Are the Discharge Pipes above or below the deep water line Above

Are they each fitted with a Discharge Valve always accessible on the plating of the vessel Yes Are the Blow Off Cocks fitted with a spigot and brass covering plate Yes

What pipes are carried through the bunkers Hold suction How are they protected By wood casing

Are all Pipes, Cocks, Valves, and Pumps in connection with the machinery and all boiler mountings accessible at all times Yes

Are the Bilge Suction Pipes, Cocks, and Valves arranged so as to prevent any communication between the sea and the bilges Yes

Dates of examination of completion of fitting of Sea Connections 8/3/14 of Stern Tube 8/3/14 Screw shaft and Propeller 8/3/14

Is the Screw Shaft Tunnel watertight Is it fitted with a watertight door worked from

## BOILERS, &amp;c.—(Letter for record S.V.)

Manufacturers of Steel J. Spencer &amp; Sons

Total Heating Surface of Boilers 1175 Is Forced Draft fitted No No. and Description of Boilers One Cylindrical built Single

Working Pressure 180 lb Tested by hydraulic pressure to 360 lb Date of test 16/2/14 No. of Certificate 8935

Can each boiler be worked separately Area of fire grate in each boiler 33 sq. ft. No. and Description of Safety Valves to each boiler 2 Dash Spring Area of each valve 4.9" Pressure to which they are adjusted 185 lb Are they fitted with easing gear Yes

Smallest distance between boilers or uptakes and bunkers or woodwork 6 to 7 feet Mean dia. of boilers Length Material of shell plates

Thickness Range of tensile strength Are the shell plates welded or flanged Descrip. of riveting: cir. seams

long. seams Diameter of rivet holes in long. seams Pitch of rivets Lap of plates or width of butt straps

Per centages of strength of longitudinal joint rivets Working pressure of shell by rules Size of manhole in shell

Size of compensating ring No. and Description of Furnaces in each boiler Material Outside diameter

Length of plain part top Thickness of plates crown Description of longitudinal joint No. of strengthening rings

Working pressure of furnace by the rules Combustion chamber plates: Material Thickness: Sides Back Top Bottom

Pitch of stays to ditto: Sides Back Top If stays are fitted with nuts or riveted heads Working pressure by rules

Material of stays Diameter at smallest part Area supported by each stay Working pressure by rules End plates in steam space:

Material Thickness Pitch of stays How are stays secured Working pressure by rules Material of stays

Diameter at smallest part Area supported by each stay Working pressure by rules Material of Front plates at bottom

Thickness Material of Lower back plate Thickness Greatest pitch of stays Working pressure of plate by rules

Diameter of tubes Pitch of tubes Material of tube plates Thickness: Front Back Mean pitch of stays

Pitch across wide water spaces Working pressures by rules Girders to Chamber tops: Material Depth and

thickness of girder at centre Length as per rule Distance apart Number and pitch of stays in each

Working pressure by rules Superheater or Steam chest; how connected to boiler Can the superheater be shut off and the boiler worked

separately Diameter Length Thickness of shell plates Material Description of longitudinal joint Diam. of rivet

holes Pitch of rivets Working pressure of shell by rules Diameter of flue Material of flue plates Thickness

If stiffened with rings Distance between rings Working pressure by rules End plates: Thickness How stayed

Working pressure of end plates Area of safety valves to superheater Are they fitted with easing gear

Lloyd's Register

002269-002278-015



IS A DONKEY BOILER FITTED? *no.*

If so, is a report now forwarded?

SPARE GEAR.

State the articles supplied: - 1 Propeller, 2 main Bearing Bolts, 2 main  
Pin Bearing Bolts, 2 Crosshead Bearings Bolts, 1 set Coupling Bolts  
1 set, 2 Red pump valves and seats, 2 Bilge Pump valves and seats, 2 Boiler  
check valves, 20 Brass ferrules, 6 Condenser tubes, 6 Boiler tubes,  
6 Piston Bolts, a quantity of assorted size Bolt & Nut, Lion of various sizes

The foregoing is a correct description,

*ESL Prosser & Law*

Manufacturer.

*April 5<sup>th</sup> 1917.*

Dates of Survey while building { During progress of work in shops - - - } 1916 Oct. 22, 24, Nov. 9, 13, 22, 27, Dec. 4, 5, 14, 19, 22, 29, 1917 Jan. 4, 5, 12, 16, 19, 23, 26, Feb. 1, 6, 7, 12  
{ During erection on board vessel - - - } 14, 16, 21, 27, Mar. 5, 8, 13, 15, 19, 21, 23, 26, Apr. 2  
Total No. of visits: 36.

Is the approved plan of main boiler forwarded herewith? *Yes*

" " " donkey " " "

Dates of Examination of principal parts - Cylinders 14/12/16, Slides 21/2/17, Covers 4/1/17, Pistons 4/1/17, Rods 14/12/16

Connecting rods 21/2/17, Crank shaft 5/12/16, Thrust shaft 11/2/17, Tunnel shafts 4/1/17, Screw shaft 23/1/17, Propeller 11/2/17

Stern tube 4/3/17, Steam pipes tested 23/3/17, Engine and boiler seatings 14/2/17, Engines holding down bolts 21/2/17

Completion of pumping arrangements 30/3/17, Boilers fixed 21/3/17, Engines tried under steam 30/3/17

Main boiler safety valves adjusted 30/3/17, Thickness of adjusting washers Port "3" Starb "H"

Material of Crank shaft Iron Identification Mark on Do. 2552, Material of Thrust shaft Iron Identification Mark on Do. 2552

Material of Tunnel shafts Iron Identification Marks on Do. 2552, Material of Screw shafts Iron Identification Marks on Do. 2552

Material of Steam Pipes Copper 3 1/2" dia x 8 ft. Test pressure 360 lbs.

Is an installation fitted for burning oil fuel? *no.* Is the flash point of the oil to be used over 150° F. *yes*

Have the requirements of Section 49 of the Rules been complied with? *yes*

Is this machinery duplicate of a previous case? *no.* If so, state name of vessel.

General Remarks (State quality of workmanship, opinions as to class, &c.)

The Engines and Boilers of this vessel were built under Special Survey and the materials and workmanship are good. When completed they were examined under steam and found to work satisfactorily.

The machinery throughout is now in good and efficient condition and eligible in our opinion to have the record of *LMC 4.17* marked in the Society's Register Book.

It is submitted that  
this vessel is eligible for  
THE RECORD. + LMC 4.17.

The amount of Entry Fee ... £ 1 : : : When applied for,  
Special ... £ 6 : 9 : : 10 APR 1917  
Donkey Boiler Fee ... £ : : :  
Travelling Expenses (if any) £ : : : 9/15/17

Committee's Minute

FRI. 13 APR. 1917

Assigned

+ LMC 4.17



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Foundation