

REPORT ON MACHINERY.

No. 69865

14 MAY 1917

Received at London Office

Date of writing Report 19 When handed in at Local Office 19

Port of Newcastle on Tyne

No. in Survey held at Newcastle on Tyne Reg. Book.

Date, First Survey 17th Nov 16. Last Survey 12th May 1917

on the SCREW STEAMER "HELIUM"

Master Built at Selby By whom built Cochrane & Sons Tons { Gross Net } When built 1914

Engines made at Smith Shields By whom made Shields Eng. & Ship Dock Coy. Ltd. when made 1914

Boilers made at Helburn on Tyne By whom made Helburn S.S. & C. Coy. Ltd. when made 1914

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

Nom. Horse Power as per Section 28 89 Is Refrigerating Machinery fitted for cargo purposes No Is Electric Light fitted No

ENGINES, &c. — Description of Engines

Triple Expansion No. of Cylinders Three No. of Cranks Three

Dia. of Cylinders 12"-20"-34" Length of Stroke 24" Revs. per minute 106 Dia. of Screw shaft 7.32" 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 through 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 Yes

Length of stern bush 2.7" Dia. of Tunnel shaft as per rule 6.21" Dia. of Crank shaft journals as per rule 6.82" Dia. of Crank pin 9" Size of Crank pins 2 1/2" x 12" Dia. of thrust shaft under collars 7" Dia. of screw 9.6" Pitch of Screw 9.3" to 10.3" No. of Blades 4 State whether moveable No Total surface 3159 sq. ft.

No. of Feed pumps 2 Diameter of ditto 2 1/4" Stroke 12" Can one be overhauled while the other is at work Yes

No. of Bilge pumps 2 Diameter of ditto 2 1/4" Stroke 12" Can one be overhauled while the other is at work Yes

No. of Donkey Engines One Sizes of Pumps 6 x 4 1/2 x 6 No. and size of Suctions connected to both Bilge and Donkey pumps In Engine Room One 2 1/2" dia In Holds, &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 & size Yes 2 1/2" dia

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 Suctions 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 4/5/17 of Stern Tube 4/5/17 Screw shaft and Propeller 4/5/17

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

BOILERS, &c. — (Letter for record S.)

Manufacturers of Steel J. Spencer & Sons Ltd.

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

Working Pressure 180 lb Tested by hydraulic pressure to 360 lb Date of test 16/12/14 No. of Certificate 8936

Can each boiler be worked separately Yes Area of fire grate in each boiler 33.59 sq. ft. No. and Description of Safety Valves to each boiler 2 Brass Spring Loaded 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

THE SURVEYORS ARE REQUESTED NOT TO WRITE ACROSS THIS MARGIN.

Vertical text on the left margin: If well stated together, and when, one will be sent



218p

IS A DONKEY BOILER FITTED? no If so, is a report now forwarded? no

SPARE GEAR. State the articles supplied: - 2 main Bearing Bolts, 2 Crank Pin Bolts, 2 Crosshead Bolts, 1 set Compensating Bolts, 2 Feed pump valves, 2 Relief Pump valves, 2 Check valves, 20 Brass ferrules, 6 Condenser tubes, 6 Boiler tubes, 1 Piston Bolt & nuts, a quantity of Bolts & nuts assorted, Iron of various sizes

The foregoing is a correct description,

Ed Bradshaw

Manufacturer. May 12th 1914.

Dates of Survey while building: During progress of work in shops - 1916 Nov. 17, 22, 27, Dec. 5, 14, 19, 22, 29; 1917 Jan. 4, 8, 12, 16, 19, 23, 26, Feb. 1, 6, 7, 12, 14, 16, 21; During erection on board vessel - 27, Mar. 5, 6, 8, 15, 19, 21, 26, Apr. 2, 5, 19, 30, May 3, 4, 7, 10, 12; Total No. of visits 39. Is the approved plan of main boiler forwarded herewith no

Dates of Examination of principal parts - Cylinders 1/2/17 Slides 6/3/17 Covers 10/5/17 Pistons 1/2/17 Rods 12/1/17 Connecting rods 6/2/17 Crank shaft 12/1/17 Thrust shaft 27/11/16 Tunnel shafts - Screw shaft 20/1/17 Propeller 19/1/17 Stern tube 30/4/17 Steam pipes tested 7/5/17 Engine and boiler seatings 24/10/17 Engines holding down bolts 2/5/17 Completion of pumping arrangements 10/5/17 Boilers fixed 10/5/17 Engines tried under steam 10/5/17 Main boiler safety valves adjusted 10/5/17 Thickness of adjusting washers Port 32, Starb 32

Material of Crank shaft Steel Identification Mark on Do. 2498 Material of Thrust shaft Steel Identification Mark on Do. 2498 Material of Tunnel shafts - Identification Marks on Do. - Material of Screw shafts Iron Identification Marks on Do. 2498

Material of Steam Pipes Copper 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. no

Have the requirements of Section 49 of the Rules been complied with no

Is this machinery duplicate of a previous case Yes If so, state name of vessel ss. Lithium

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 my opinion to have the record of L.M.C. 5, 17 marked in the Society's Register Book

It is submitted that this vessel is eligible for THE RECORD + L.M.C. 5. 17.

JWR
16/5/17

The amount of Entry Fee ... £ 1 : : : When applied for, 14 MAY 1917
Special ... £ 6 : 9 : :
Donkey Boiler Fee ... £ : : : :
Travelling Expenses (if any) £ : : : : When received, 26/7/17

Wm Austin
Engineer Surveyor to Lloyd's Register of British & Foreign Shipping

Committee's Minute FRI 18 MAY 1917
Assigned + L.M.C. 5. 17

MACHINERY CERTIFICATE WRITTEN



NEWCASTLE-ON-TYNE

The Surveyors are required to write on or below the space for Committee's Minute.