

REPORT ON MACHINERY.

Received at London Office

Date of writing Report Aug. 19 1918 When handed in at Local Office Aug. 19/18 Port of Montreal
 No. in Survey held at Montreal Date, First Survey Oct. 15. 1917 Last Survey Aug. 15 1918
 Reg. Book. on the S.S. "WAR EARL" (Number of Visits 73)

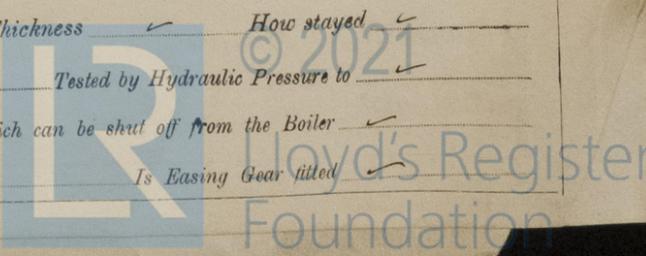
Master H. H. Bloomfield Built at Montreal By whom built Canadian Vickers Ltd Tons { Gross 4327
 Net 2580
 Engines made at Montreal By whom made Canadian Vickers Ltd when made 1918
 Boilers made at Montreal By whom made Canadian Vickers Ltd when made 1918
 Registered Horse Power 266 Owners Imperial Munitions Board Port belonging to Montreal
 Nom. Horse Power as per Section 28 474 Is Refrigerating Machinery fitted for cargo purposes No Is Electric Light fitted Yes

ENGINES, &c.—Description of Engines Triple Expansion No. of Cylinders 3 No. of Cranks 3
 Dia. of Cylinders 27-44-73 Length of Stroke 48 Revs. per minute 75 Dia. of Screw shaft as per rule 4.67 Material of screw shaft S.
 Is the screw shaft fitted with a continuous liner the whole length of the stern tube No. 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 No 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 If two
 liners are fitted, is the shaft lapped or protected between the liners Yes Length of stern bush 5' 0"
 Dia. of Tunnel shaft as per rule 13.30 Dia. of Crank shaft journals as per rule 13.96 Dia. of Crank pin 14.5 Size of Crank webs 52x28x9 Dia. of thrust shaft under
 collars 14.5 Dia. of screw 14.5 Pitch of Screw 16' 6" No. of Blades 4 State whether moveable No. Total surface 72.45 sq
 No. of Feed pumps 2 Diameter of ditto 9 1/2 x 7 Stroke 24 Can one be overhauled while the other is at work Yes
 No. of Bilge pumps 2 Diameter of ditto 4 Stroke 24 Can one be overhauled while the other is at work Yes
 No. of Donkey Engines 1 Sizes of Pumps 10" x 7" x 10" No. and size of Suctions connected to both Bilge and Donkey pumps
 In Engine Room 2-3" 1-3 1/2" In Holds, &c. Bilges No. 1 2-3 1/2" No. 2 1-4" 2-3 1/2"
No. 3 1-4" 2-3" 1-4" No. 4 1-4" 1-4" No. 5 1-3" 1-3" No. 6 1-3" 1-3" No. 7 1-4" 1-4" No. 8 1-4" 1-4"
 No. of Bilge Injections 1 sizes 9" Connected to condenser, or to circulating pump Yes Is a separate Donkey Suction fitted in Engine room & size 4"
 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 None How are they protected Yes
 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
 Is the Screw Shaft Tunnel watertight Yes Is it fitted with a watertight door Yes worked from Top E.R. platform

BOILERS, &c.—(Letter for record S.) Manufacturers of Steel Lukens Steel & Iron Co. Pa. U.S.A.
 Total Heating Surface of Boilers 6660 sq Is Forced Draft fitted Yes No. and Description of Boilers 3 Single Ended
 Working Pressure 180 lbs Tested by hydraulic pressure to 360 lbs Date of test 11-6-18 No. of Certificate 20
 Can each boiler be worked separately Yes Area of fire grate in each boiler 58 sq No. and Description of Safety Valves to
 each boiler 2 Spring Loaded Area of each valve 8.3 sq Pressure to which they are adjusted 184 lbs Are they fitted with easing gear Yes
 Smallest distance between boilers or uptakes and bunkers or woodwork 13" Mean dia. of boilers 14' 3" Length 11' 9" Material of shell plates S.
 Thickness 1 3/16" Range of tensile strength 28-32 TONS Are the shell plates welded or flanged No. Descrip. of riveting: cir. seams D & T.
 long. seams T. DB & S. Diameter of rivet holes in long. seams 1 1/4" Pitch of rivets 8 1/2" Lap of plates or width of butt straps 18 1/2"
 Per centages of strength of longitudinal joint rivets 90.0 Working pressure of shell by rules 186 Size of manhole in shell 16" x 12"
 plate 85.2 Size of compensating ring 37 1/2 x 30 x 1 1/2" No. and Description of Furnaces in each boiler 3 Deighton Material S. Outside diameter 46 1/4"
 Length of plain part top 9' 1/6" bottom 9' 1/6" Thickness of plates crown 9/16" bottom 9/16" Description of longitudinal joint Weld No. of strengthening rings 1
 Working pressure of furnace by the rules 190 Combustion chamber plates: Material S. Thickness: Sides 5/8" Back 5/8" Top 5/8" Bottom 15/16"
 Pitch of stays to ditto: Sides 9" x 7 1/2" Back 8 1/2" x 8 1/2" Top 8 1/2" x 7 1/2" If stays are fitted with nuts or riveted heads No Working pressure by rules 193
 Material of stays S. Area at smallest part 1.76 Area supported by each stay 70.1 sq Working pressure by rules 200 End plates in steam space:
 Material S. Thickness 1/16" Pitch of stays 15" x 14" How are stays secured Double Nuts Working pressure by rules 195 Material of stays S.
 Area at smallest part 5.27 Area supported by each stay 255 sq Working pressure by rules 215 Material of Front plates at bottom S.
 Thickness 3/16" Material of Lower back plate S. Thickness 3/16" Greatest pitch of stays 7 1/2" x 8 1/2" Working pressure of plate by rules 189
 Diameter of tubes 2 1/2" Pitch of tubes 3 3/4" x 3 3/4" Material of tube plates S. Thickness: Front 13/16" Back 1/16" Mean pitch of stays 7 1/2" x 11 1/4"
 Pitch across wide water spaces 3 1/2" x 3 1/2" Working pressures by rules 186 Girders to Chamber tops: Material S. Depth and
 thickness of girder at centre 10" x 1 1/2" Length as per rule 33 1/2" Distance apart 8 1/2" Number and pitch of stays in each 3 - 7 1/2"
 Working pressure by rules 216 Steam dome: description of joint to shell Yes % of strength of joint Yes
 Diameter Yes Thickness of shell plates Yes Material Yes Description of longitudinal joint Yes Diam. of rivet holes Yes
 Pitch of rivets Yes Working pressure of shell by rules Yes Crown plates Yes Thickness Yes How stayed Yes

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

1910-125210-015210



IS A DONKEY BOILER FITTED? **No**

If so, is a report now forwarded?

SPARE GEAR. State the articles supplied:—

1 screw shaft	One section of crank shaft	One set of safety valve springs
1 spare propeller	6 gauge glasses & washers	3 boiler stay tubes
2 connecting rod bolts & nuts top end	100 assorted bolts & nuts for engine	12 plain tubes
2 " " " " bottom end	100 " " " "	24 condenser tubes
2 main bearing bolts & nuts	1 set of boiler check valves	50 ferrules
1 set of coupling bolts	6 cyl. cover bolts	3 tube stoppers
1 set of bilge pump valves & seats	4 valve chest bolts	6 piston bolts & nuts
		2 plates of iron
		6 bars assorted iron
		1 set of fire bars
		1 set of piston springs

The foregoing is a correct description,

Full Brothers & Co. Limited

A. Miller
General Manager.

Manufacturer.

Dates of Survey while building

During progress of work in shops	1917. Oct. 15-20-30 Nov. 2-8-10-14 Dec. 3-6-7-13-14-31 1918. Jan. 2-4-10-12-26 Feb. 1-4-7-13-15-19-21-25-27
During erection on board vessel	Mar. 1-5-8-13-14-22-26 Apr. 1-4-8-10-19-20-25 May 3-12-14-20-27-23-25-29-31 June 5-6-7-10
Total No. of visits	73

Is the approved plan of main boiler forwarded herewith **No**

Dates of Examination of principal parts—Cylinders ⁸⁻⁵⁻¹⁸ 14-5-18 Slides 7-6-18 Covers 10-6-18 Pistons 30-5-18 Rods 30-5-18

Connecting rods 2-6-18 Crank shaft 25-5-18 Thrust shaft 22-5-18 Tunnel shafts 22-5-18 Screw shaft 22-5-18 Propeller 22-6-18

Stern tube 22-5-18 Steam pipes tested 18-7-18 Engine and boiler seatings 24-6-18 Engines holding down bolts 12-7-18

Completion of pumping arrangements 30-7-18 Boilers fixed 27-6-18 Engines tried under steam 23-7-18

Completion of fitting sea connections 5-6-18 Stern tube 30-5-18 Screw shaft and propeller 5-6-18

Main boiler safety valves adjusted 6-8-18. Thickness of adjusting washers. P. 44" S. 78" P. 42" S. 42" P. 39" S. 41"

Material of Crank shaft **S.** Identification Mark on Do. ^{CV. 19} 25-4-18 Material of Thrust shaft **S.** Identification Mark on Do. ^{CV. 19} 22-5-18

Material of Tunnel shafts ^{CV. 19} 22-5-18 Identification Marks on Do. **S** Material of Screw shafts **S** Identification Marks on Do. ^{CV. 19} 22-6-18 & 7-6-18

Material of Steam Pipes **Steel** Test pressure **540 lbs.**

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

Have the requirements of Section 49 of the Rules been complied with

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 have been constructed under special survey & in accordance with the rules. The materials and workmanship are good. The engines & boilers have been efficiently fitted on board and have been tried under steam together with all the auxiliary machinery and all were found to be working satisfactorily. The safety valves have been adjusted under steam to blow at 185 lbs pressure per sq. in. The boilers are of good workmanship and the material has been tested in accordance with the rules. They were tested to a water pressure of 360 lbs per sq. in. and found tight. The joints of the liner having been soldered together should in my opinion be specially examined when the shaft is drawn in for inspection.*

In my opinion the Machinery of this vessel is now in good and efficient condition & eligible to be classed in the Register Book and to have the Notation. **LMC. 8-18.**

It is submitted that
this vessel is eligible for
THE RECORD. + LMC 8, 18 F.D.
SUBJECT TO THE SCREW SHAFT BEING SPECIALLY
EXAMINED AT JOINT OF LINERS WITHIN 2 YEARS
FROM THE DATE OF BUILD.

The amount of Entry Fee ...	£ 15.00	When applied for,	Aug. 14. 1918
Special ...	£ 218.00	When received,	Aug. 14. 1918
Donkey Boiler Fee ...	£ :		
Travelling Expenses (if any) £	:		

H. J. Alderson & W. E. Swinburne
Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute

FRI. 4-OCT. 1918

Assigned

+ LMC 8. 18. F. D. Subject



Certificate (if required) to be sent to
 The Surveyors are requested not to write on or below the space for Committee's Minute.