

Rpt. 4.

REPORT ON MACHINERY

No. 1891
MON. 23 MAY. 1921

Date of writing Report Apr. 29 1921 When handed in at Local Office May. 10 1921 Port of Montreal
No. in Survey held at Montreal Date, First Survey Mar 25. 1919 Last Survey May. 5. 1921
Reg. Book. on the S.S. "CANADIAN COMMANDER" (Number of Visits 41)
Master A. L. Mackenzie Built at Montreal By whom built Canadian Vickers Ltd Tons { Gross 5493
Engines made at Montreal By whom made Canadian Vickers Ltd. Net 3347
Boilers made at " By whom made " When built 1921
Registered Horse Power 266.5 Owners Canadian Govt. Merchant Marine Port belonging to Montreal
Nom. Horse Power as per Section 28 520 Is Refrigerating Machinery fitted for cargo purposes Yes Is Electric Light fitted Yes

ENGINES, &c.—Description of Engines Triple Expansion Surface condensing 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 14.5" Material of screw shaft S
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 Yes 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 1/2"
Dia. of Tunnel shaft 13.3" as per rule 13.3" Dia. of Crank shaft journals 14.5" 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 14.6" Pitch of Screw 15'9" No. of Blades 4 State whether moveable Yes Total surface 95 sq
No. of Feed pumps 2 Diameter of ditto 8" Stroke 10 1/2" 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 3 Sizes of Pumps 1 GEN. SER. 11"x7 1/2"x10" 1 CIR. PUMP. 12"CIRC. No. and size of Suctions connected to both Bilge and Donkey pumps
In Engine Room 2-3 1/2" In Holds, &c. BALLAST. NO. 1. 1-3" NO. 2. 2-3" 1-4" NO. 3. 2-3" 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 2-4"
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 E.R. top platform

BOILERS, &c.—(Letter for record S.) Manufacturers of Steel Witch Steel Co.
Total Heating Surface of Boilers 7840 Is Forced Draft fitted Yes No. and Description of Boilers 3 Scotch type.
Working Pressure 180 lbs Tested by hydraulic pressure to 360 lbs Date of test 18-9-20 No. of Certificate 44
Can each boiler be worked separately Yes Area of fire grate in each boiler 66.12 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 180 lbs Are they fitted with easing gear Yes
Smallest distance between boilers or uptakes and bunkers or woodwork 14" Mean dia. of boilers 15'6" Length 11'6" Material of shell plates S
Thickness 1 3/8" Range of tensile strength 28-32 TONS Are the shell plates welded or flanged No. Descrip. of riveting: cir. seams D.R.
long. seams DBS. TR. Diameter of rivet holes in long. seams 1 3/8" Pitch of rivets 9 3/8" Lap of plates or width of butt straps 19 7/8"
Per centages of strength of longitudinal joint 87.4 Working pressure of shell by rules 183 lbs Size of manhole in shell 16"x12"
Size of compensating ring 37 1/2"x33"x1 1/8" No. and Description of Furnaces in each boiler 3 light Material S. Outside diameter 4'2 1/2"
Length of plain part top 19'32" Thickness of plates bottom 19'32" Description of longitudinal joint Well No. of strengthening rings Yes
Working pressure of furnace by the rules 187 lbs Combustion chamber plates: Material S. Thickness: Sides 5/8" Back 5/8" Top 5/8" Bottom 5/8"
Pitch of stays to ditto: Sides 9"x7 1/2" Back 8 1/2"x8" Top 9"x7 1/2" If stays are fitted with nuts or riveted heads Sub. Working pressure by rules 197 lbs
Material of stays S. Area at smallest part 1.76 sq Area supported by each stay 68.6 sq Working pressure by rules 242 lbs End plates in steam space: S.
Material S. Thickness 1 1/2" Pitch of stays 18"x16" How are stays secured Witch nuts Working pressure by rules 195.7 lbs Material of stays S.
Area at smallest part 5.27 sq Area supported by each stay 290 sq Working pressure by rules 191 lbs Material of Front plates at bottom S.
Thickness 1 3/8" Material of Lower back plate S. Thickness 1 3/8" Greatest pitch of stays 13 1/2"x8 1/2" Working pressure of plate by rules 182.5 lbs
Diameter of tubes 3" Pitch of tubes 4 1/2" Material of tube plates S. Thickness: Front 1 3/8" Back 3/4" Mean pitch of stays 8 1/2"x8 1/2"
Pitch across wide water spaces 13 1/2" Working pressures by rules 249 lbs Girders to Chamber tops: Material S. Depth and
thickness of girder at centre 10"x1 1/2" Length as per rule 2'6 1/8" Distance apart 9" Number and pitch of stays in each 3-7 1/2"
Working pressure by rules 203 lbs 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 2019
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 Easing Gear fitted Yes

IS A DONKEY BOILER FITTED? *No.*

If so, is a report now forwarded? ☒

SPARE GEAR. State the articles supplied:—

2 connecting rod top end bolts & nuts	1 set of main & donkey chucks	2 bronze propeller blades.
2 " " bottom " " "	6 aft cover studs & nuts	1 A.P. piston valve
2 main bearing " " "	6 steam chest studs & nuts	1 set of piston rings (complete)
6 coupling " " "	12 junk ring studs & nuts.	18 ordinary & 6 stay tubes for boiler
1 set of 7-ell pump valves	Assorted bolts & nuts	12 condenser tubes & 50 ferrules
1 " Bilge " " "	round & flat iron	1 set of fire bars for one boiler

The foregoing is a correct description,

FOR CANADIAN BOILERS LIMITED

M. Miller

Manufacturer.

Dates of Survey while building	During progress of work in shops --	1919. Mar 25. Apr 6. 19. May 5. 6. 17. 26. June 12. 22. 24. 27. July 13. 20. 23. 26. 28. 31. Aug. 6. 11. 17. 30. Oct. 3. 10. 15. 18. 29.
	During erection on board vessel --	1919. Nov. 8. 11. 17. 22. 25. 29. Dec. 8. 1920. Apr. 5. 7. 11. 13. 16. 19. 24. May 4.
	Total No. of visits	41.

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

" " " donkey " " " *✓*

Dates of Examination of principal parts—Cylinders *1-6-20* Slides *25-10-20* Covers *22-10-20* Pistons *15-10-20* Rods *22-10-20*

Connecting rods *15-10-20* Crank shaft *20-7-20* Thrust shaft *26-7-20* Tunnel shafts *12-6-20* Screw shaft *20-7-20* Propeller *23-7-20*

Stern tube *11-10-20* Steam pipes tested *8-12-20* Engine and boiler seatings *25-10-20* Engines holding down bolts *25-11-20*

Completion of pumping arrangements *7-4-21* Boilers fixed *15-11-20* Engines tried under steam *19-4-21*

Completion of fitting sea connections *29-10-20* Stern tube *25-10-20* Screw shaft and propeller *28-10-20*

Main boiler safety valves adjusted *5-4-21* Thickness of adjusting washers *P. 503" S. 439" P. 437" S. 507" P. 479" S. 574"*

Material of Crank shaft *S* Identification Mark on Do. *O.T.J.* Material of Thrust shaft *S* Identification Mark on Do. *O.T.J.*

Material of Tunnel shafts *S* Identification Marks on Do. *O.T.J.* Material of Screw shafts *S* Identification Marks on Do. *O.T.J.*

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 *Yes* If so, state name of vessel *San Prover. San Ruyter. San. Sigmund. San. Victor. San. Sigmund. San. Ruyter. San. Victor. San. Sigmund.*

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

The Machinery of this vessel has been constructed under special survey and in accordance with the rules and the approved plans. The workmanship and materials are good. It has been fitted on board and tried under full working conditions with satisfactory results.

The Boilers are of good workmanship and the materials have been tested according to the rules. They have been tested to a water pressure of 360 lbs and the safety valves have been adjusted under steam to 180 lbs.

In my opinion the machinery of this vessel is in good and efficient condition and is eligible to be classed in the Register Book of the Society with the record of F.L.M.C.H. 21.

It is submitted that
this vessel is eligible for
THE RECORD. + L.M.C. 5.21. F.D. CL.

Roll
30/5/21 *GR*

The amount of Entry Fee ... £	<i>30.00</i>	When applied for,
Special ... £	<i>505.00</i>	<i>Apr. 29. 1921</i>
Donkey Boiler Fee <i>Foreign</i> ... £	<i>40.00</i>	When received,
Travelling Expenses (if any) £	<i>70.00</i>	<i>May 6. 1921</i>

Committee's Minute

Assigned

TUE. MAY. 31 1921

+ L.M.C. 5.21 F.D. CL.

MACHINERY CERT
WRITTEN

H. J. Alderson
Engineer Surveyor to Lloyd's Register of Shipping.



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Foundation