

REPORT ON MACHINERY.

No. 13

Received at London Office WED. - 6 SEP. 1916

Date of writing Report 16th July 1916 When handed in at Local Office 10 Port of Toronto, Ont.
No. in Survey held at Collingwood, Ont. Date, First Survey 8th Sept 1915 Last Survey 23rd June 1916
Reg. Book. on the Steel Screw Steamer "Royalite" (Number of Visits 22) Tons { Gross 2051.83
Net 1542.44
Master H. Scott Built at Collingwood By whom built Collingwood Shipbuilding Co. When built 1916
Engines made at Collingwood By whom made Collingwood Shipbuilding Co. when made 1916
Boilers made at do By whom made do when made 1915
Registered Horse Power 95.6 Owners Imperial Oil Co., Ltd. Port belonging to Sarnia
Nom. Horse Power as per Section 28 142.7 Is Refrigerating Machinery fitted for cargo purposes no Is Electric Light fitted yes

ENGINES, &c.—Description of Engines Vertical Triple Expansion No. of Cylinders 3 No. of Cranks 3
Dia. of Cylinders 16"-26"-44" Length of Stroke 36 Revs. per minute 80 Dia. of Screw shaft as per rule 10.102 Material of 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
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 4 ft
Dia. of Tunnel shaft as per rule 8.6045 Dia. of Crank shaft journals as per rule 9.084 Dia. of Crank pin 9 1/2 Size of Crank webs 6 1/2 x 7 Dia. of thrust shaft under
collars 9 1/4 Dia. of screw 13 ft Pitch of Screw 12 ft No. of Blades 4 State whether moveable yes Total surface 56 sq. ft.
No. of Feed pumps 4 Diameter of ditto 2-3" Stroke 20" Can one be overhauled while the other is at work yes
No. of Bilge pumps 3 Diameter of ditto 1-1/4" x 8" Stroke 12" Can one be overhauled while the other is at work yes
No. of Donkey Engines 1 Sizes of Pumps 14 x 8 x 12 duplex No. and size of Suctions connected to both Bilge and Donkey pumps
in Engine Room 3-3" Bilge, 2-5" Tank and 1-6" Tank Suctions In Holds, &c. 1-3" Suction in Fore hold, 1-3" Suction in Pump
Room, 1-3" Suction in Fore Peak, 1-3" Suction in after peak.
No. of Bilge Injections 1 sizes 6" Connected to condenser, or to circulating pump connected Is a separate Donkey Suction fitted in Engine room & size yes - 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 no
Are all connections with the sea direct on the skin of the ship yes Are they Valves or Cocks Valves except Bilge & Separator Valve off
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 Air Pipes to Double Bottom How are they protected 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 13/12/15 of Stern Tube 8/12/15 Screw shaft and Propeller 12/12/15
Is the Screw Shaft Tunnel watertight no Tunnel Is it fitted with a watertight door no worked from no

BOILERS, &c.—(Letter for record (7)) Manufacturers of Steel Worth Bros.
Total Heating Surface of Boilers 2443 Is Forced Draft fitted no No. and Description of Boilers 1- Single Ended
Working Pressure 180 Tested by hydraulic pressure to 360 Date of test 12/12/15 No. of Certificate 6
Can each boiler be worked separately no Area of fire grate in each boiler 72 No. and Description of Safety Valves to
each boiler 1-3" Turbine Area of each valve 7.07" Pressure to which they are adjusted 180 Are they fitted with easing gear yes
Smallest distance between boilers or uptakes and bunkers or woodwork 3-9" Between Bunkers Mean dia. of boilers 15 ft Length 11 ft Material of shell plates Steel
Thickness 1/4" Range of tensile strength 28-32 T. Are the shell plates welded or flanged no Descrip. of riveting: cir. seams none
Long. seams 264 Staps 3/16" Diameter of rivet holes in long. seams 1/32 Pitch of rivets 9 7/16 Lap of plates or width of butt straps 2 1/4"
Percentages of strength of longitudinal joint 95.4 Working pressure of shell by rules 210.4 Size of manhole in shell 16" x 12"
Size of compensating ring 34" x 31" No. and Description of Furnaces in each boiler 3 Morrison Material Steel Outside diameter 49.3
Length of plain part top 65 Thickness of plates bottom 65 Description of longitudinal joint Welded No. of strengthening rings 10
Working pressure of furnace by the rules 214.5 Combustion chamber plates: Material Steel Thickness: Sides 19/32 Back 19/32 Top 19/32 Bottom 3/4
Pitch of stays to ditto: Sides 7 1/2 x 6 1/2 Back 7 x 6 1/2 Top 8 x 7 If stays are fitted with nuts or riveted heads outer back Steel Working pressure by rules 195.7
Material of stays Steel Diameter at smallest part 1 1/2 Area supported by each stay 45.5 Working pressure by rules 227.7 End plates in steam space:
Material Steel Thickness 3/8 + 5/8 Pitch of stays 16" x 16" How are stays secured secured through plates Working pressure by rules 197.6 Material of stays Steel
Diameter at smallest part 2 1/2 Area supported by each stay 256 Working pressure by rules 199.4 Material of Front plates at bottom Steel
Thickness 11/16 Material of Lower back plate Steel Thickness 11/16 Greatest pitch of stays 11" x 20" Working pressure of plate by rules 196.9
Diameter of tubes 3" Pitch of tubes 4 1/2" x 4" Material of tube plates Steel Thickness: Front 11/16 Back 11/16 Mean pitch of stays 8 1/2" x 8"
Pitch across wide water spaces 14 1/2" Working pressures by rules 191 Girders to Chamber tops: Material Steel Depth and
Thickness of girder at centre 10" x 1 1/2" Length as per rule 33 Distance apart 7 1/4" x 8" Number and pitch of stays in each 3 @ 7"
Working pressure by rules 203.8 Superheater or Steam chest; how connected to boiler Can the superheater be shut off and the boiler worked
separately no Diameter no Length no Thickness of shell plates no Material no Description of longitudinal joint no Diam. of rivet
holes no Pitch of rivets no Working pressure of shell by rules no Diameter of flue no Material of flue plates no Thickness no
If stiffened with rings no Distance between rings no Working pressure by rules no End plates: Thickness no How stayed no
Working pressure of end plates no Area of safety valves to superheater no Are they fitted with easing gear no

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VERTICAL DONKEY BOILER— Manufacturers of Steel

No. _____ Description _____

Made at _____ By whom made _____ When made _____ Where fixed _____

Working pressure _____ tested by hydraulic pressure to _____ Date of test _____ No. of Certificate _____ Fire grate area _____ Description of Safe Port _____

Valves _____ No. of Safety Valves _____ Area of each _____ Pressure to which they are adjusted _____ Date of adjustment _____

If fitted with easing gear _____ If steam from main boilers can enter the donkey boiler _____ Dia. of donkey boiler _____ Length _____

Material of shell plates _____ Thickness _____ Range of tensile strength _____ Descrip. of riveting long. seams _____

Dia. of rivet holes _____ Whether punched or drilled _____ Pitch of rivets _____ Lap of plating _____ Per centage of strength of joint _____ Rivets _____ Plates _____

Working pressure of shell by rules _____ Thickness of shell crown plates _____ Radius of do. _____ No. of stays to do. _____ Dia. of stays _____

Diameter of furnace Top _____ Bottom _____ Length of furnace _____ Thickness of furnace plates _____ Description of joint _____

Working pressure of furnace by rules _____ Thickness of furnace crown plates _____ Radius of do. _____ Stayed by _____

Diameter of uptake _____ Thickness of uptake plates _____ Thickness of water tubes _____ Dates of survey _____

SPARE GEAR. State the articles supplied:—

The foregoing is a correct description,

John D. Hatch Manufacturer.

Dates of Survey while building

During progress of work in shops—	8/9/15, 23/9/15, 7/10/15, 22/10/15, 28/11/15, 25/11/15, 8/12/15, 12/12/15
	During erection on board vessel—
	13/12/15, 7/1/16, 22/1/16, 4/2/16, 24/2/16, 23/3/16, 29/4/16, 5/5/16, 12/5/16, 22/5/16, 14/6/16

Total No. of visits 22

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

Dates of Examination of principal parts—Cylinders 8th Nov '15 Slides 7th Nov '15 Covers 7th Nov '15 Pistons 7th Nov '15 Rods 8th Nov '15

Connecting rods 8th Nov '15 Crank shaft Dec 9th Thrust shaft Dec 9th Tunnel shafts _____ Screw shaft Dec 9th Propeller Dec 13th

Stern tube 8th Dec '15 Steam pipes tested 13th Apr '16 Engine and boiler seatings 27th Oct '15 Engines holding down bolts 12th Dec '16

Completion of pumping arrangements 22nd May 1916 Boilers fixed 23rd Mar 1916 Engines tried under steam 14th June 1916

Main boiler safety valves adjusted 13th June 1916 Thickness of adjusting washers Port $\frac{1}{16}$ " Starboard $\frac{3}{4}$ "

Material of Crank shaft *Steel* Identification Mark on Do. 265 ATT Material of Thrust shaft *Steel* Identification Mark on Do. 265 ATT

Material of Tunnel shafts _____ Identification Marks on Do. _____ Material of Screw shafts *Steel* Identification Marks on Do. 265 ATT

Material of Steam Pipes *Wrought Iron* Test pressure 540 lbs.

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

The machinery of this vessel has been built in accordance with the Rules and approved plans.

The quality of the material and workmanship is good.

In my opinion this vessel's machinery is eligible to have the notation + LMC G-16 (in red)

The amount of Entry Fee .. £ 2 : 0 : 0 When applied for, _____

Special £ 21 : 9 : 019.....

Donkey Boiler Fee £ : : : When received, _____

Travelling Expenses (if any) £ 34 : 2 : 019.....

Committee's Minute - Fri. 17. NOV. 1916

Assigned

+ LMC G-16

MACHINERY CERTIFICATE
WRITTEN.

J. P. F. Benson

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



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Foundation