

REPORT ON MACHINERY.

Received at London Office

1885. 12 Nov 1910

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

No. in Survey held at Yarmouth Date, First Survey June 22 Last Survey 27/9/10 19

Reg. Book. on the Engines No 426 for Garston G. & T. B. Co. Ltd. "Gopher" (Number of Visits 18)

Master Built at Garston By whom built Garston G. & T. B. Co. Tons ^{Gross} _{Net} When built 1910

Engines made at Yarmouth By whom made Crabtree & Co. Ltd. when made 1910

Boilers made at Glasgow By whom made D. Rowan & Co. when made 1910

Registered Horse Power Owners Canadian & Pacific Railway Port belonging to

Nom. Horse Power as per Section 28 120 Is Refrigerating Machinery fitted for cargo purposes Is Electric Light fitted

ENGINES, &c.—Description of Engines Triple exp. surface condensing No. of Cylinders three No. of Cranks 3

Dia. of Cylinders 16"-26"-42" Length of Stroke 27" Revs. per minute Dia. of Screw shaft 8 1/2" Material of screw shaft steel

Is the screw shaft fitted with a continuous liner the whole length of the stern tube Is the after end of the liner made water tight

in the propeller boss If the liner is in more than one length are the joints burned 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 3'-3"

Dia. of Tunnel shaft 7.75" Dia. of Crank shaft journals 8 1/4" Dia. of Crank pin 8 1/2" Size of Crank webs 6 1/4" x 12 1/2" Dia. of thrust shaft under collars 8 1/4" Dia. of screw 9'-6" Pitch of Screw No. of Blades State whether moceable Total surface

No. of Feed pumps two Diameter of ditto 2 3/4" Stroke 13 1/2" Can one be overhauled while the other is at work yes

No. of Bilge pumps two Diameter of ditto 3 1/4" Stroke 13 1/2" Can one be overhauled while the other is at work yes

No. of Donkey Engines Sizes of Pumps No. and size of Suctions connected to both Bilge and Donkey pumps

In Engine Room In Holds, &c.

No. of Bilge Injections sizes Connected to condenser, or to circulating pump Is a separate Donkey Suction fitted in Engine room & size

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

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

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

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

What pipes are carried through the bunkers How are they protected

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

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

Dates of examination of completion of fitting of Sea Connections of Stern Tube Screw shaft and Propeller

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

BOILERS, &c.—(Letter for record) Manufacturers of Steel

Total Heating Surface of Boilers 2115 sq ft Is Forced Draft fitted no No. and Description of Boilers one single ended

Working Pressure 180 lbs. Tested by hydraulic pressure to Date of test No. of Certificate

Can each boiler be worked separately Area of fire grate in each boiler No. and Description of Safety Valves to each boiler Are they fitted with easing gear

Smallest distance between boilers or uptakes and bunkers or woodwork 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 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 Thickness of plates 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 riceted 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



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

CRABTREE & CO., LIMITED

The foregoing is a correct description,

Manufacturer.

J. A. Jones
 SECRETARY

Dates of Survey while building: During progress of work in shops -- 1910 June 22, July 26, Aug 22, 23, 26, Sep 6, 14, 16, 20 - 27
 During erection on board vessel ---
 Total No. of visits 10/ Is the approved plan of main boiler forwarded herewith _____
 " " " donkey " " " _____
 Dates of Examination of principal parts—Cylinders 22-8-10 Slides 22-8-10 Covers 22-8-10 Pistons 22-8-10 Rods 22-8-10
 Connecting rods 22-8-10 Crank shaft 20-9-10 Thrust shaft 26-7-10 Tunnel shafts 26-7-10 Screw shaft 26-9-10 Propeller and duct and duct
 Stern tube 26-7-10 Steam pipes tested _____ Engine and boiler seatings _____ Engines holding down bolts _____
 Completion of pumping arrangements _____ Boilers fixed _____ Engines tried under steam _____
 Main boiler safety valves adjusted _____ Thickness of adjusting washers _____
 Material of Crank shaft Steel Identification Mark on Do. 254/WDM Material of Thrust shaft Steel Identification Mark on Do. 191 FLS
 Material of Tunnel shafts Steel Identification Marks on Do. 190 FLS Material of Screw shafts _____ Identification Marks on Do. _____
 Material of Steam Pipes _____ Test pressure _____

General Remarks (State quality of workmanship, opinions as to class, &c.) These engines have been constructed under special survey in accordance with the rules of this society, the material has been tested & the workmanship is good. These engines have been forwarded to Liverpool to be fitted on board the vessel.

Certificate (if required) to be sent to Committee's Minute.

Note: For balance of survey fee see 42 rpt on boiler

The amount of Entry Fee £ 2: 0: 0 When applied for, 19:10:1910
 Special £ 5: 9: 6
 Donkey Boiler Fee £ 5: 9: 6
 Travelling Expenses (if any) £ 2: 7: 11 When received, 9:11:10 7/10

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

Committee's Minute
 Assigned

See Liv report No. 65001

