

11 NOV 1910

Rpt. 4.

REPORT ON MACHINERY.

No. 65004.

Port of *Liverpool*

Received at London Office 19

No. in Survey held at *Larston* Date, first Survey *17 Aug* Last Survey *9th Nov.* 1910
Reg. Book. *16* on the *Machinery of the STEEL S.C. Sp. "GOPHER"* (Number of Visits *11*)
Master Built at *Larston* By whom built *Fairlie & Co. & J.B. Co. Ltd.* Tons { Gross
Net
When built *1910-11*
Engines made at *Garmouth* By whom made *Crabtree & Co. Ltd.* when made *1910*
Boilers made at *Glasgow* By whom made *David Rowan & Co.* when made *1910*
Registered Horse Power *120* Owners { *Messrs. J. & W. D. & Co. Ltd.*
(London & Pacific Ry Co.) Port belonging to *Liverpool*
Nom. Horse Power as per Section 28 *120* Is Refrigerating Machinery fitted for cargo purposes *no.* Is Electric Light fitted *no.*

ENGINES, &c.—Description of Engines *Triple Surface Condensing* No. of Cylinders *Three* No. of Cranks *3*
Dia. of Cylinders *16"-26"-42"* Length of Stroke *27"* Revs. per minute *115* Dia. of Screw shaft as per rule... Material of
as fitted... screw shaft)
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 *✓* 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
Dia. of Tunnel shaft as per rule... Dia. of Crank shaft journals as per rule... Dia. of Crank pin Size of Crank webs Dia. of thrust shaft under
as fitted... collars Dia. of screw Pitch of Screw No. of Blades State whether moveable Total surface
No. of Feed pumps Diameter of ditto Stroke Can one be overhauled while the other is at work
No. of Bilge pumps Diameter of ditto Stroke Can one be overhauled while the other is at work
No. of Donkey Engines *one* Sizes of Pumps *6" 8 1/4" x 6" Duplex* No. and size of Suctions connected to both Bilge and Donkey pumps
In Engine Room *10 2" ✓* In Holds, &c. *After hold 10 2" ✓*
Forward hold 10 2" ✓
No. of Bilge Injections *1* sizes *4"* Connected to ~~condenser~~ or to circulating pump *yes.* Is a separate Donkey Suction fitted in Engine room & size *yes - 2"*
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 *none.*
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 *Main & Aux. steam pipes.* How are they protected *lagged & protected by strong steel 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 *7-9-10* of Stern Tube *12-8-10* Screw shaft and Propeller *27-9-10*
14-9-10
Is the Screw Shaft Tunnel watertight *none.* Is it fitted with a watertight door *✓* worked from *✓*

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

Total Heating Surface of Boilers *2115* Is Forced Draft fitted *no.* No. and Description of Boilers *One single ended.*
Working Pressure *180 lb.* Tested by hydraulic pressure to Date of test *22-8-10* No. of Certificate *10553*
Can each boiler be worked separately *✓* Area of fire grate in each boiler *59* No. and Description of Safety Valves to
each boiler *two - spring loaded* Area of each valve *7.07* Pressure to which they are adjusted *180 lb.* Are they fitted with easing gear *yes.*
Smallest distance between boilers or uptakes and bunkers or woodwork *15"* 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
plate...
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
bottom...
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

VERTICAL DONKEY BOILER—Manufacturers of Steel

No. *none fitted*
 Description *none fitted*
 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 _____ Plates _____
 Dia. of rivet holes _____ Whether punched or drilled _____ Pitch of rivets _____ Lap of plating _____ Per centage of strength of joint _____
 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 _____ Stayed by _____
 Diameter of uptake _____ Thickness of uptake plates _____ Thickness of water tubes _____ Dates of survey _____

SPARE GEAR. State the articles supplied:—*2 connecting rod & bottom end bolts & nuts, 2 main bearing bolts, 1 nut coupling bolts, 1 nut valve for air, circulating, fuel, bilge, and donkey pumps, assorted bolts & nuts, iron of various sizes, 2 safety valve springs, 2 of waste valve springs for cylinders, 6 junk ring bolts, 6 boiler secured stays, 1 main & 1 donkey fuel check valve, 1 nut fire bar.*

The foregoing is a correct description,

Manufacturer.

Dates of Survey while building
 During progress of work in shops—
 During erection on board vessel—
 Total No. of visits—

1910. Aug 12. 22. 29. Sept 7. 14. 20. Oct 13. 18. 27. Nov 1. 9.

Is the approved plan of main boiler forwarded herewith

Dates of Examination of principal parts—Cylinders _____ Slides _____ Covers _____ Pistons _____ Rods _____
 Connecting rods _____ Crank shaft _____ Thrust shaft _____ Tunnel shafts _____ Screw shaft *7/9* Propeller *14/9*
 Stern tube *12/5* Steam pipes tested *29-10-10* Engine and boiler seatings *12/23/25/27/7/9* Engines holding down bolts *28/10*
 Completion of pumping arrangements *9-11-10* Boilers fixed *13-10-10* Engines tried under steam *9-11-10*
 Main boiler safety valves adjusted *9-11-10* Thickness of adjusting washers *Port & Starboard 1/4"*
 Material of Crank shaft _____ Identification Mark on Do. *2541WON* Material of Thrust shaft _____ Identification Mark on Do. *191 FLS*
 Material of Tunnel shafts _____ Identification Marks on Do. *190 FLS* Material of Screw shafts _____ Identification Marks on Do. *2546WON*
 Material of Steam Pipes _____ *Brass & Copper* ✓ Test pressure *360 lbs.* ✓

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

The engines and boiler of this vessel have been fitted on board at this port.
The safety valves of main boiler were adjusted under steam.
The machinery examined under full working conditions and found satisfactory, in my opinion, is eligible for record of + LMC 11.10.

Note:—The machinery of this vessel is duplicate of that fitted on board the Eng "MUSQUASH" Liverpool Report No. 64964.

It is submitted that this vessel is eligible for THE RECORD. + LMC 11.10.

JWD
17/11/10
H. J. R.

The amount of Entry Fee. £ : :
 Special £ *5. 9. 4*
 Donkey Boiler Fee £ : :
 Travelling Expenses (if any) £ : :
 When applied for, from *London* *19. 10. 19. 10*
 When received, *10/11/10* *W.C.*

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

Committee's Minute

Assigned

L. M. C. 11.10

MACHINERY CERTIFICATE WRITTEN.



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Certificate (if required) to be sent to

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