

## REPORT ON MACHINERY.

No. 25758

Received at London Office

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Date of writing Report 19 When handed in at Local Office 1/1/10 Port of Hull.

No. in Survey held at 2/ull. Date, First Survey Sep. 23<sup>rd</sup> Last Survey Dec 20<sup>th</sup> 1912

Reg. Book. (Number of Visits 22)

Compl. on the Ship S. K. "CAULONIA"

Tons { Gross 296  
Net 130

Master Built at Selby By whom built Lockhart & Sons When built 1912

Engines made at } By whom made } when made 1912

Boilers made at } Hull By whom made Messrs. Charles F. Holmes & Co. Ltd. when made 1912

Registered Horse Power Owners Grimsby Alliance Ship Building Co. Ltd. Port belonging to Grimsby

Nom. Horse Power as per Section 28 80 80 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 13"-23"-34" Length of Stroke 24" Revs. per minute 7.456 as per rule 4.21 Material of screw shaft as fitted 8 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

Is 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 If two liners are fitted, is the shaft lapped or protected between the liners Length of stern bush 36"

Dia. of Tunnel shaft as per rule 6.616 as fitted 4 1/2" Dia. of Crank shaft journals as per rule 6.946 as fitted 4 1/2" Dia. of Crank pin 4 1/2" Size of Crank webs 4 1/2" x 4 1/2" Dia. of thrust shaft under collars 1/2" Dia. of screw 9 1/2" Pitch of Screw 11-0" No. of Blades 4 State whether moveable No. Total surface 30 sq ft

No. of Feed pumps 2 Diameter of ditto 2 1/2" Stroke 24" Can one be overhauled while the other is at work Yes

No. of Bilge pumps 2 Diameter of ditto 2 1/2" Stroke 24" Can one be overhauled while the other is at work Yes

No. of Donkey Engines 1 Sizes of Pumps 6" x 3 1/2" x 6" No. and size of Suctions connected to both Bilge and Donkey pumps

In Engine Room 2' one forward 1 one aft. In Holds, &c. 1-2" to main hold, 1-2" to fore hold. Bilge suction from all bilges with discharge on deck

No. of Bilge Injections 1 sizes 3 Connected to condenser, or to circulating pump pump Is a separate Donkey Suction fitted in Engine room & size 2 1/2" injection

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 0

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 Hold cuttings 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 12.10.12 of Stern Tube 12.10.12 Screw shaft and Propeller 12.10.12

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

BOILERS, &c.—(Letter for record S.) Manufacturers of Steel Phoenix & Co. Ltd. Windsor Toring of Windsor

Total Heating Surface of Boilers 1332 sq ft Is Forced Draft fitted No. No. and Description of Boilers One up multi. simple ended.

Working Pressure 180 lbs. Tested by hydraulic pressure to 360 lbs. Date of test 26.11.12 No. of Certificate 1945

Can each boiler be worked separately Area of fire grate in each boiler 42.75 sq ft No. and Description of Safety Valves to each boiler Two Spring Area of each valve 4.90 Pressure to which they are adjusted 185 lbs. Are they fitted with easing gear Yes

Smallest distance between boilers on uptakes and bunkers or woodwork 6" Mean dia. of boilers 13.6" Length 10.6" Material of shell plates S.

Thickness 1/8" Range of tensile strength 28 tons Are the shell plates welded or flanged No. Descrip. of riveting: cir. seams D. B. S. Y. R. 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 3/8"

Percentages of strength of longitudinal joint rivets 94.5 plate 85.25 Working pressure of shell by rules 185 lbs. Size of manhole in shell 16" x 12"

Size of compensating ring 8" x 1 1/2" No. and Description of Furnaces in each boiler 3 plain Material S. Outside diameter 38"

Length of plain part top 5.10 1/2 bottom 6.6 Thickness of plates crown 13 bottom 12 Description of longitudinal joint Weld No. of strengthening rings 0

Working pressure of furnace by the rules 180 lbs. Combustion chamber plates: Material S. Thickness: Sides 1/16 Back 1/16 Top 1/16 Bottom 1/16

Pitch of stays to ditto: Sides 9 x 7 3/4 Back 9 x 8 1/2 Top 9 1/2 x 7 3/4 If stays are fitted with nuts or riveted heads No. Working pressure by rules 213 lbs.

Material of stays S. Diameter at smallest part 2.45 Area supported by each stay 101.25 Working pressure by rules 213 lbs. End plates in steam space:

Material S. Thickness 1/16 Pitch of stays 19 x 15 How are stays secured To X. S. Working pressure by rules 182 lbs. Material of stays S.

Diameter at smallest part 6.33 Area supported by each stay 285 Working pressure by rules 230 lbs. Material of Front plates at bottom S.

Thickness 1/16 Material of Lower back plate S. Thickness 1/16 Greatest pitch of stays 14 x 9 Working pressure of plate by rules 219 lbs.

Diameter of tubes 3 1/2" Pitch of tubes 6 x 4 3/4 Material of tube plates S. Thickness: Front 1 Back 1/8 Mean pitch of stays 11"

Pitch across wide water spaces 14 Working pressures by rules 185 lbs. Girders to Chamber tops: Material S. Depth and thickness of girder at centre 9 1/2" - 1 3/4" Length as per rule 34.94 Distance apart 9.5" Number and pitch of stays in each 3 - 4 3/4"

Working pressure by rules 184 lbs. Superheater or Steam chest; how connected to boiler Can the superheater be shut off and the boiler worked

Material Diameter Length Thickness of shell plates Material Description of longitudinal joint Diam. of rivet

Pitch of rivets Working pressure of shell by rules Diameter of flue Material of flue plates Thickness

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	When made	Where fixed
Made at	By whom made		
Working pressure	tested by hydraulic pressure to	Date of test	No. of Certificate
Valves	No. of Safety Valves	Area of each	Pressure to which they are adjusted
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
Working pressure of shell by rules	Thickness of shell crown plates	Radius of do.	No. of stays to do.
Diameter of furnace Top	Bottom	Length of furnace	Thickness of furnace plates
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:—Two each top & bottom end connecting rod bolts & nuts, two main bearing bolts & nuts, one set of coupling bolts & nuts, one set each fuel & lift pump valves, iron of various sizes, a quantity of assorted bolts, nuts etc.

The foregoing is a correct description,

*J. Arthur Holmes* Manufacturer.

Dates of Survey while building: During progress of work in shops -- 1912. Sep 23. Oct 3. 8. 12. 16. 18. 23. 29. Nov 4. 8. 13. 15. 19. 21. 26. Dec 6. 9. 11. 12. 14. 16. 20  
During erection on board vessel --  
Total No. of visits

Is the approved plan of main boiler forwarded herewith

Dates of Examination of principal parts—Cylinders 4.11.12 Slides 19.11.12 Covers 19.11.12 Pistons 19.11.12 Rods 13.11.12  
Connecting rods 15.11.12 Crank shaft 13.11.12 Thrust shaft 19.11.12 Tunnel shafts v Screw shaft 3.10.12 Propeller 3.10.12  
Stern tube 3.10.12 Steam pipes tested 9.12.12 Engine and boiler seatings 12.10.12 Engines holding down bolts 6.12.12  
Completion of pumping arrangements 20.12.12 Boilers fixed 9.12.12 Engines tried under steam 16.12.12  
Main boiler safety valves adjusted 16.12.12 Thickness of adjusting washers Forward 3" Off 3"  
Material of Crank shaft S. Identification Mark on Do. N° 957.6.D Material of Thrust shaft S. Identification Mark on Do. N° 957.6.D  
Material of Tunnel shafts v Identification Marks on Do. v Material of Screw shafts I. Identification Marks on Do. N° 957.6.D  
Material of Steam Pipes Solid drawn copper Test pressure 300 lbs. per sq. inch hydraulic

**General Remarks** (State quality of workmanship, opinions as to class, &c. The engines & boilers of this vessel have been constructed under special survey in accordance with the Rules. The materials & workmanship are sound & good. The boilers tested by hydraulic pressure, & with the engines secured on board & tested under steam they are now in good order & safe working condition & are fully submitted as being eligible in my opinion to be classed with the notation of "L.M.C. 12.12" in the Register Book).

It is submitted that this vessel is eligible for THE RECORD + L.M.C. 12.12.

J.W.D. 6/1/13. A.R.R.

The amount of Entry Fee .. £ 1 : 0 :  
Special .. £ 12 : 0 :  
Donkey Boiler Fee .. £ : :  
Travelling Expenses (if any) £ : 4/1 :  
When applied for, 2/1/13  
When received, 31.1.13

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

Committee's Minute TUE. JAN - 7 1913

Assigned

+ L.M.C. 12.12

MACHINERY CERTIFICATE WRITTEN



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