

## REPORT ON MACHINERY.

No. 24970

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Date of writing Report 19 When handed in at Local Office 30/4/12 Port of Hull.  
No. in Survey held at Hull. Date, First Survey Dec. 11<sup>th</sup> Last Survey Apr 19<sup>th</sup> 1912  
Reg. Book. (Number of Visits 26)  
114 on the S.S. K. "SETTSU"  
Master Built at Selby. By whom built Messrs. Buchanan & Sons. When built 1912.  
Engines made at } By whom made } when made 1912  
Boilers made at } Hull. By whom made } Messrs. Charles D. Holmes & Co. Ltd. when made 1912.  
Registered Horse Power Owners Messrs. Tual & Wad. Ltd. Port belonging to Cardiff.  
Nom. Horse Power as per Section 28 46 Is Refrigerating Machinery fitted for cargo purposes No. Is Electric Light fitted No.

ENGINES, &c.—Description of Engines Triple Expansion No. of Cylinders 3 No. of Cranks 3  
Dia. of Cylinders 12"-21"-34" Length of Stroke 24" Revs. per minute 108 Dia. of Screw shaft as per rule 4.04" Material of screw shaft 2.1  
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 If two  
liners are fitted, is the shaft lapped or protected between the liners Length of stern bush 31"  
Dia. of Tunnel shaft as per rule 6.76" Dia. of Crank shaft journals as per rule 6.544" Dia. of Crank pin 6.8" Size of Crank webs 13.6" Dia. of thrust shaft under  
collars 6.8" Dia. of screw 8.4" Pitch of Screw 10.3"-11.3" No. of Blades 4 State whether moveable No. Total surface 24.5  
No. of Feed pumps 1 Diameter of ditto 2.5" Stroke 14.4" Can one be overhauled while the other is at work  
No. of Bilge pumps 1 Diameter of ditto 2.5" Stroke 14.4" Can one be overhauled while the other is at work  
No. of Donkey Engines 1 Sizes of Pumps 6" x 3" x 6" No. and size of Suctions connected to both Bilge and Donkey pumps  
In Engine Room Two 2" - One forward & one aft. In Holds, &c. One 2" to main hold. Ejection  
suction from all parts 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 2.5" ejection  
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 suction 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 5.2.12 of Stern Tube 5.2.12 Screw shaft and Propeller 5.2.12  
Is the Screw Shaft Tunnel watertight No. Is it fitted with a watertight door worked from

BOILERS, &c.—(Letter for record S.) Manufacturers of Steel Messrs. Napier & Sons, Ltd. & Messrs. Knauff & Co. Ltd. of Glasgow, Rtn.  
Total Heating Surface of Boilers 1380 sq. ft. Is Forced Draft fitted No. No. and Description of Boilers One cyl. hull. triple main.  
Working Pressure 180 lbs. Tested by hydraulic pressure to 260 lbs. Date of test 26.3.12 No. of Certificate 1884  
Can each boiler be worked separately Area of fire grate in each boiler 36.4 sq. ft. No. and Description of Safety Valves to  
each boiler Two - Spring Area of each valve 3.94 sq. in. Pressure to which they are adjusted 185 lbs. Are they fitted with easing gear Yes.  
Smallest distance between boilers or uptakes and bunkers or woodwork 6" Mean dia. of boilers 12'-6" Length 10'-6" Material of shell plates S.  
Thickness 1" Range of tensile strength 29 tons Are the shell plates welded or flanged No. Descrip. of riveting: cir. seams 2.10.  
long. seams N.P.S.P.R. Diameter of rivet holes in long. seams 1.6" Pitch of rivets 4.5" Lap of plates or width of butt straps 15"  
Per centages of strength of longitudinal joint rivets 84.8 plate 84.8 Working pressure of shell by rules 182 lbs. Size of manhole in shell 16" x 12"  
Size of compensating ring 4' x 1' No. and Description of Furnaces in each boiler 2 plain Material S. Outside diameter 43"  
Length of plain part top 6'-8" Thickness of plates crown 6.1" Description of longitudinal joint welded No. of strengthening rings  
bottom 6'-4.5" Thickness of plates bottom 6.4" Working pressure by rules 185 lbs. Material of stays S.  
Working pressure of furnace by the rules 184 lbs. Combustion chamber plates: Material S. Thickness: Sides 1.6" Back 1.6" Top 2.2" Bottom 1.6"  
Pitch of stays to ditto: Sides 9" x 9" Back 10" x 8.5" Top 9" x 8.5" If stays are fitted with nuts or riveted heads No. Working pressure by rules 186 lbs.  
Material of stays S. Diameter at smallest part 2.4" Area supported by each stay 104.18 sq. in. Working pressure by rules 201 lbs. End plates in steam space:  
Material S. Thickness 1.5" Pitch of stays 17" x 16" How are stays secured N.P.S.P.R. Working pressure by rules 185 lbs. Material of stays S.  
Diameter at smallest part 2.7" Area supported by each stay 242 sq. in. Working pressure by rules 207 lbs. Material of Front plates at bottom S.  
Thickness 1.5" Material of Lower back plate S. Thickness 1.5" Greatest pitch of stays 14.5" x 8.5" Working pressure of plate by rules 185 lbs.  
Diameter of tubes 3.4" Pitch of tubes 4.5" x 4.5" Material of tube plates S. Thickness: Front 1.5" Back 1.5" Mean pitch of stays 9.5"  
Pitch across wide water spaces 15" x 1.5" Working pressures by rules 249 lbs. Girders to Chamber tops: Material S. Depth and  
thickness of girder at centre 9.5" x 1.5" Length as per rule 3'-0" Distance apart 8.5" Number and pitch of stays in each 3-9"  
Working pressure by rules 194 lbs. 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		
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:— Two each 1" & 1 1/2" bottom end connecting rod bolts & nuts, two main bearing bolts & nuts, one set of coupling bolts & nuts, one set each fuel & blower pump valves, iron of various sizes, a quantity of assorted bolts, nuts etc.

The foregoing is a correct description,  
p. pro CHARLES D. HOLMES & Co. LTD.

*Charles D. Holmes*

Manufacturer.

Dates of Survey while building  
During progress of work in shops -- 1911 - Dec 11. 1912 - Jan 25, 30. Feb. 1, 2, 3, 5, 6, 8, 13, 15, 21, 23, 27. Mar 4, 6, 12, 14, 19  
During erection on board vessel -- Mar 26, 30. Apr 1, 3, 16, 17, 19.  
Total No. of visits 26

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

Dates of Examination of principal parts—Cylinders 6.3.12 Slides 19.3.12 Covers 6.2.12 Pistons 12.3.12 Rods 14.3.12  
Connecting rods 14.3.12 Crank shaft 4.3.12 Thrust shaft 4.3.12 Tunnel shafts - Screw shaft 2.2.12 Propeller 30.1.12  
Stern tube 1.2.12 Steam pipes tested 1.4.12 Engine and boiler seatings 5.2.12 Engines holding down bolts 3.4.12  
Completion of pumping arrangements 14.4.12 Boilers fixed 3.4.12 Engines tried under steam 14.4.12  
Main boiler safety valves adjusted 14.4.12 Thickness of adjusting washers *Towards 1/16" 2/8"*  
Material of Crank shaft *S* Identification Mark on Do. *Nº 880 T.G.D.* Material of Thrust shaft *S* Identification Mark on Do. *Nº 880 T.G.D.*  
Material of Tunnel shafts - Identification Marks on Do. - Material of Screw shafts *S* Identification Marks on Do. *Nº 880 T.G.D.*  
Material of Steam Pipes *Solid drawn copper* Test pressure *360 lbs. per square inch*

General Remarks (State quality of workmanship, opinions as to class, &c.) *The engines & boiler of this vessel have been constructed under special survey in accordance with the Rules. The materials & workmanship are sound & good. The boiler tested by hydraulic pressure & with the engines secured on board & tried under steam they are now in good order & capable of working satisfactorily & respectfully submitted as being eligible in my opinion to be classed with the notation of *L.M.C. 4.12* in the Register Book.*

It is submitted that  
this vessel is eligible for  
THE RECORD + LMC 4.12.

*J.W.D.* 10/5/12

The amount of Entry Fee .. £ 1 : 0 :  
Special .. £ 11 : 8 :  
Donkey Boiler Fee .. £ : :  
Travelling Expenses (if any) £ : 8/2 :  
When applied for, 8/5/12  
When received, 31.5.12

Committee's Minute

FRI. MAY 10. 1912

Assigned

*H.M.C. 4.12*

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



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Foundation