

REPORT ON MACHINERY

No. 25969
TUE. MAR. 18. 1913

Received at London Office

Date of writing Report 19 17/3/13 When handed in at Local Office 17/3/13 Port of Hull
 Date, First Survey Nov 19 12 Last Survey Mar 7 13
 No. in Survey held at Hull Reg. Book. 10404 on the Steel S.K. "SAPPHIRE"
 Master Sully Built at Sully By whom built Cochran & Sons When built 1913
 Engines made at Hull By whom made Messrs. Charles F. Jones & Co. Ltd. when made 1913
 Boilers made at Hull By whom made Messrs. Charles F. Jones & Co. Ltd. when made 1913
 Registered Horse Power 83 Owners Thompson Steam Traction Co. Ltd. Port belonging to Hull
 Nom. Horse Power as per Section 28 83 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 13"-22 1/2"-34" Length of Stroke 24" Revs. per minute 115 Dia. of Screw shaft 4 1/2" Material of screw shaft 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
 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 Yes If two
 liners are fitted, is the shaft lapped or protected between the liners Yes Length of stern bush 38"
 Dia. of Tunnel shaft as per rule 6.82 Dia. of Crank shaft journals as per rule 4.16 Dia. of Crank pin 4 1/2" Size of Crank webs 4 1/2" x 4 1/2" Dia. of thrust shaft under
 collars 4 1/2" Dia. of screw 9-6" Pitch of Screw 10-10 1/2" No. of Blades 4 State whether moceable No. Total surface 32 sq ft
 No. of Feed pumps 1 Diameter of ditto 2 3/4" Stroke 14 1/4" Can one be overhauled while the other is at work Yes
 No. of Bilge pumps 1 Diameter of ditto 2 3/4" Stroke 14 1/4" Can one be overhauled while the other is at work Yes
 No. of Donkey Engines 1 Sizes of Pumps 6" x 4 1/2" x 16" duplex No. and size of Suctions connected to both Bilge and Donkey pumps
 In Engine Room Two 2 1/2" One forward & one aft In Holds, &c. One 2 1/2" to fore hold, one 2 1/2" to main
 hold, one 2 1/2" to fore stowage well, one 2 1/2" to aft stowage well & 1" suction from all bilges
 No. of Bilge Injections 1 sizes 3 1/2" Connected to condenser, or to circulating pump Yes Is a separate Donkey Suction fitted in Engine room & size 3" gudgeon
 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 Yes
 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 16.12.12 of Stern Tube 16.12.12 Screw shaft and Propeller 16.12.12
 Is the Screw Shaft Tunnel watertight Yes Is it fitted with a watertight door Yes worked from —

BOILERS, &c.—(Letter for record S.) Manufacturers of Steel Clydesdale Iron & Steel Works, Glasgow
 Total Heating Surface of Boilers 1350 sq ft Is Forced Draft fitted No. No. and Description of Boilers One up. mult. simple ended
 Working Pressure 200 lbs Tested by hydraulic pressure to 400 lbs Date of test 30.1.13 No. of Certificate 1959
 Can each boiler be worked separately Yes Area of fire grate in each boiler 47.3 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 205 lbs Are they fitted with easing gear Yes
 Smallest distance between boilers or uptakes and bunkers or woodwork 6" Mean dia. of boilers 13'-0" Length 10'-6" Material of shell plates S.
 Thickness 1 3/16" Range of tensile strength 28/1000 Are the shell plates welded or flanged No. Descrip. of riveting: cir. seams R.P.S.
 long. seams R.B.S.T.R. Diameter of rivet holes in long. seams 1 1/2" Pitch of rivets 8 5/8" Lap of plates or width of butt straps 18"
 Per centages of strength of longitudinal joint rivets 89 Working pressure of shell by rules 205 lbs Size of manhole in shell 16" x 12"
 Size of compensating ring 13" x 4" No. and Description of Furnaces in each boiler 3 - plain Material S. Outside diameter 34.625"
 Length of plain part top 6'-5" Thickness of plates crown 13" Description of longitudinal joint Weld. No. of strengthening rings 0
 Working pressure of furnace by the rules 221 lbs Combustion chamber plates: Material S. Thickness: Sides 1 1/16" Back 1 1/16" Top 1 1/16" Bottom 1 1/16"
 Pitch of stays to ditto: Sides 8 3/4" x 8" Back 8 3/4" x 8" Top 8 3/4" x 8" If stays are fitted with nuts or riveted heads Yes Working pressure by rules 232 lbs
 Material of stays S. Diameter at smallest part 2.40" Area supported by each stay 89 sq in Working pressure by rules 228 lbs Material of stays S.
 Material S. Thickness 1 9/16" Pitch of stays 19" x 18" How are stays secured R.B.S.T.R. Working pressure by rules 228 lbs Material of Front plates at bottom S.
 Diameter at smallest part 7.50" Area supported by each stay 342 sq in Working pressure by rules 228 lbs Material of Front plates at bottom S.
 Thickness 1" Material of Lower back plate S. Thickness 1 5/16" Greatest pitch of stays 8" x 8 3/4" Working pressure of plate by rules 254 lbs
 Diameter of tubes 3 1/2" Pitch of tubes 4 3/4" x 4 3/8" Material of tube plates S. Thickness Front 1" Back 8/16" Mean pitch of stays 12"
 Pitch across wide water spaces 13 3/4" Working pressures by rules 203 lbs Girders to Chamber tops: Material S. Depth and
 thickness of girder at centre 10"-1 1/2" Length as per rule 3'-0 1/2" Distance apart 8 1/2" Number and pitch of stays in each 3-8"
 Working pressure by rules 205 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 —

9000-5575M

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 sets top & bottom end connecting rod bolts & nuts, two main bearing bolts & nuts, one set of coupling bolts & nuts, one set each fuel & bilge pump valves, iron of various sizes, a quantity of assorted bolts, nuts etc.*

The foregoing is a correct description,
Arthur Holmes Manufacturer.

Dates of Survey while building: During progress of work in shops -- 1912 - Nov 14, Dec 6, 10, 16, 17, 18, 24, 30, 1913 - Jan 8, 10, 14, 17, 22, 23, 30, Feb 5, 14, 17, 21, 25, 27, 28
 During erection on board vessel --- Mar 1, 7
 Total No. of visits 25

Is the approved plan of main boiler forwarded herewith *R/L No 25908*
 " " " donkey " " " ✓

Dates of Examination of principal parts—Cylinders 1.1.13 Slides 5.2.13 Covers 10.1.13 Pistons 5.2.13 Rods 30.1.13
 Connecting rods 30.1.13 Crank shaft 18.12.12 Thrust shaft 10.1.13 Tunnel shafts ✓ Screw shaft 6.12.12 Propeller 6.12.12
 Stern tube 6.12.12 Steam pipes tested 21.2.13 Engine and boiler seatings 16.12.12 Engines holding down bolts 14.2.13
 Completion of pumping arrangements 1.3.13 Boilers fixed 27.2.13 Engines tried under steam 24.2.13
 Main boiler safety valves adjusted 24.2.13 Thickness of adjusting washers *Found 1/16" of 1/8"*
 Material of Crank shaft *Steel* Identification Mark on Do. *Nº 9876D* Material of Thrust shaft *Steel* Identification Mark on Do. *Nº 9876D*
 Material of Tunnel shafts ✓ Identification Marks on Do. ✓ Material of Screw shafts *Iron* Identification Marks on Do. *Nº 9876D*
 Material of Steam Pipes *Solid drawn copper* ✓ Test pressure *400 lbs per sq inch hydraulic*

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 & tested under steam they are now in good order & safe working condition & respectfully submitted as being eligible in my opinion to be classed with the notation of 'L.M.C. 3.13' in the Register Book.*

It is submitted that this vessel is eligible for THE BRONZE + L.M.C. 3.13.

J.W.D.
 20/3/13

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

The amount of Entry Fee .. £ 1 : 0 :
 Special .. £ 12 : 9 :
 Donkey Boiler Fee .. £ : :
 Travelling Expenses (if any) £ : 8/2 :

THU. MAR. 20 1913

Committee's Minute
 Assigned

+ L.M.C. 3.13



Hull

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