

REPORT ON MACHINERY.

No. 19631
WED. 4 DEC 1907

Port of Hull

Received at London Office 10

No. in Survey held at Hull Date, first Survey July 9th Last Survey Nov 27th 1907
 Reg. Book. 36 suff on the S/Hawar BUCENTAUR (Number of Visits 33)
 Master Built at Selby By whom built Lockhart & Sons Tons { Gross 184 Net 88
 Engines made at Hull By whom made Geo. D. Holmes & Co. When built 1907
 Boilers made at b By whom made b when made b
 Registered Horse Power ✓ Owners *London & Lancashire Steam Towing Co Ltd* Port belonging to *Grimsby*
 Nom. Horse Power as per Section 28 57. Is Refrigerating Machinery fitted for cargo purposes No Is Electric Light fitted No

ENGINES, &c.—Description of Engines *Triple* No. of Cylinders 3 No. of Cranks 3
 Dia. of Cylinders $11\frac{1}{2} \times 14\frac{1}{2} \times 32$ Length of Stroke 23 Revs. per minute 112 Dia. of Screw shaft *as per rule 6.47* Material of screw shaft *Iron*
 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 596* Dia. of Crank shaft journals *as per rule 6.47* Dia. of Crank pin 6.5 Size of Crank webs *4.2 x 12.5* Dia. of thrust shaft under
 collars 6.5 Dia. of screw 8.5 Pitch of Screw 11.3 No. of Blades 4 State whether moveable *No* Total surface *74.5*
 No. of Feed pumps 1 Diameter of ditto 2 Stroke 23 Can one be overhauled while the other is at work ✓
 No. of Bilge pumps 1 Diameter of ditto 2 Stroke 23 Can one be overhauled while the other is at work ✓
 No. of Donkey Engines 1 Sizes of Pumps 2.5 x 5 No. and size of Suctions connected to both Bilge and Donkey pumps
 In Engine Room 2-2 (Fore & Aft) In Holds, &c. 2-2 (Starboard & Main Area)
 2 Expector suction from all bilges & discharge on deck
 No. of Bilge Injections 1 sizes 2.5 Connected to condenser, or to circulating pump *Yes* Is a separate Donkey Suction fitted in Engine room & size *2.5 Expector*
 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 Suctions* 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 9.9.07 of Stern Tube 9.9.07 Screw shaft and Propeller 9.9.07
 Is the Screw Shaft Tunnel watertight *Yes* Is it fitted with a watertight door ✓ worked from ✓

BOILERS, &c.—(Letter for record 8.) Manufacturers of Steel *Steel & Scotland*
 Total Heating Surface of Boilers 9304 Is Forced Draft fitted *No* No. and Description of Boilers *1 S.E. Mountain*
 Working Pressure 180 lbs. Tested by hydraulic pressure to 360 lbs. Date of test 15.11.07 No. of Certificate 1612
 Can each boiler be worked separately ✓ Area of fire grate in each boiler 294 No. and Description of Safety Valves to
 each boiler *2 Spring loaded* Area of each valve 3.97 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 11.6 Length 9.6 Material of shell plates *Steel*
 Thickness $\frac{3}{32}$ Range of tensile strength 28-32 Are the shell plates welded or flanged *No* Descrip. of riveting: cir. seams *SR Lap*
 long. seams *SR S. S. Lap* Diameter of rivet holes in long. seams $\frac{1}{32}$ Pitch of rivets 78 Lap of plates or width of butt straps 15
 Per centages of strength of longitudinal joint rivets 90 plate 85.5 Working pressure of shell by rules 184 Size of manhole in shell 17x13
 Size of compensating ring $7\frac{1}{2} \times \frac{3}{32}$ No. and Description of Furnaces in each boiler 2 plain Material *Steel* Outside diameter 3.14
 Length of plain part top 5.7 bottom 5.0 Thickness of plates crown $\frac{3}{32}$ bottom $\frac{1}{4}$ Description of longitudinal joint *Welded* No. of strengthening rings —
 Working pressure of furnace by the rules 197 Combustion chamber plates: Material *Steel* Thickness: Sides $\frac{3}{32}$ Back $\frac{1}{4}$ Top $\frac{1}{4}$ Bottom $\frac{3}{32}$
 Pitch of stays to ditto: Sides 9x9 Back 9x9 Top 8x7.5 If stays are fitted with nuts or riveted heads *Yes* Working pressure by rules 194
 Material of stays *Steel* Diameter at smallest part $\frac{1}{8}$ Area supported by each stay 84.3° Working pressure by rules 221 End plates in steam space:
 Material *Steel* Thickness $\frac{1}{16}$ Pitch of stays 15x15 How are stays secured *SR Washers* Working pressure by rules 185 Material of stays *Steel*
 Diameter at smallest part $\frac{1}{4}$ Area supported by each stay 225 Working pressure by rules 211 Material of Front plates at bottom *Steel*
 Thickness $\frac{3}{32}$ Material of Lower back plate *Steel* Thickness $\frac{3}{8}$ Greatest pitch of stays 16 Working pressure of plate by rules 180
 Diameter of tubes $3\frac{1}{4}$ Pitch of tubes $4\frac{1}{2} \times 4\frac{1}{2}$ Material of tube plates *Steel* Thickness: Front $\frac{3}{32}$ Back $\frac{1}{16}$ Mean pitch of stays 98
 Pitch across wide water spaces $16\frac{3}{4}$ Working pressures by rules 180 Girders to Chamber tops: Material *Iron* Depth and
 thickness of girder at centre 8x12 Length as per rule 267 Distance apart $7\frac{1}{2}$ Number and pitch of stays in each 208
 Working pressure by rules 187 Superheater or Steam chest; how connected to boiler *None* 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 _____ Stayed by _____

Diameter of uptake _____ Thickness of uptake plates _____ Thickness of water tubes _____ Dates of survey _____

SPARE GEAR. State the articles supplied:— *Two top & two bottom end connecting rods with nuts, two main bearing bolts, one set of coupling bolts, one set of feed & high pump valves, one main & one donkey feed check valve, various bolts & nuts etc.*

The foregoing is a correct description,
Charles D. Holmes Manufacturer.

Dates of Survey while building: During progress of work in shops— *1907:— July 9, 26, 30 Aug 9, 17, 20, 28 Sep 9, 13, 14, 16, 17, 21, 25, 28 Oct. 1, 5, 7, 9*
During erection on board vessel— *Oct. 15, 18, 23, 25, 29, 31. Nov 5, 8, 11, 13, 15, 22, 23, 27.*
Total No. of visits *33.*

Is the approved plan of main boiler forwarded herewith *R/Lk. 19590*

Dates of Examination of principal parts—Cylinders *5.11.07* Slides *12.11.07* Covers *11.11.07* Pistons *8.11.07* Rods *8.11.07*
Connecting rods *9.11.07* Crank shaft *29.10.07* Thrust shaft *28.8.07* Tunnel shafts ✓ Screw shaft *17.8.07* Propeller *17.8.07*
Stern tube *17.8.07* Steam pipes tested *22.11.07* Engine and boiler seatings *9.9.07* Engines holding down bolts *22.11.07*
Completion of pumping arrangements *27.11.07* Boilers fixed *22.11.07* Engines tried under steam *22.11.07*
Main boiler safety valves adjusted *22.11.07* Thickness of adjusting washers *PLA 5*
Material of Crank shaft *Iron* Identification Mark on Do. *362.5.H.G. 13.11.07* Material of Thrust shaft *Iron* Identification Mark on Do. *362.5.H.G. 5.11.07*
Material of Tunnel shafts ✓ Identification Marks on Do. ✓ Material of Screw shafts *Iron* Identification Marks on Do. *362.5.H.G. 19.10.07*
Material of Steam Pipes *Sold drawn Copper* Test pressure *360 lb.*

General Remarks (State quality of workmanship, opinions as to class, &c. *The machinery & boiler of this vessel have been constructed under Special Survey, are of good material & workmanship & have been fitted & secured in accordance with the Rules. They are now in good working condition & eligible in my opinion to have the Notation L.M.C. 11.07 in the Register Book.*

It is submitted that this vessel is eligible for THE RECORD. *L.M.C. 11.07.*

JLC 4-12-07

J.S.
4.12.07

The amount of Entry Fee..	£ 1	When applied for.
Special	£ 8 11	<i>3/12/1907</i>
Donkey Boiler Fee .. .	£ -	When received.
Travelling Expenses (if any) £	- 4	<i>31-12-1907</i>

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

Committee's Minute *FRI. 6 DEC 1907*
Assigned *L.M.C. 11.07*

MACHINERY CERTIFICATE WRITTEN.



Certificate (if required) to be sent to

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