

## REPORT ON MACHINERY.

No. 19967

Port of Hull

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No. in Survey held at Hull & Goole Date, first Survey June 5<sup>th</sup> 1907 Last Survey 6<sup>th</sup> April 1908  
 Reg. Book. 9000 on the Steel S. Co. Mastwing (Number of Visits 50)  
 Master Goole Built at Goole By whom built Goole S. B. & Co. Ltd Tons { Gross 199  
 { Net 63  
 When built 1908  
 Engines made at } By whom made } when made }  
 Boilers made at } Hull By whom made } Messrs Earle's Ltd when made } 1908  
 Registered Horse Power 55 Owners Kelsall Bros & Buchingham (H. A. Kelsall, mfr) Port belonging to Hull  
 Nom. Horse Power as per Section 28 55 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 12" - 21" - 33" Length of Stroke 21" Revs. per minute 105 Dia. of Screw shaft as per rule 6.7" Material of screw shaft Steel  
 as fitted 7.75"  
 Is the screw shaft fitted with a continuous liner the whole length of the stern tube No 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 2 separate liners 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 No Length of stern bush 35.5"  
 Dia. of Tunnel shaft as per rule 5.74" Dia. of Crank shaft journals as per rule 6" Dia. of Crank pin 6.2" Size of Crank webs 12.5" x 4.5" Dia. of thrust shaft under  
 collars 6.2" Dia. of screw 8.9" Pitch of Screw 9.6" to 10.6" No. of Blades 4 State whether moveable No Total surface 26 sq ft  
 No. of Feed pumps 1 Diameter of ditto 2.5" Stroke 10" Can one be overhauled while the other is at work  
 No. of Bilge pumps 1 Diameter of ditto 2.5" Stroke 10" Can one be overhauled while the other is at work  
 No. of Donkey Engines One Sizes of Pumps 4.5" x 2.75" x 4" No. and size of Suctions connected to both Bilge and Donkey pumps  
 In Engine Room One 2", One 2.5" In Holds, &c. One 2" to hold, two 2" to tank  
and ejector suction from all parts  
 No. of Bilge Injections 1 sizes 3.5" Connected to condenser, or to circulating pump pump Is a separate Donkey Suction fitted in Engine room & size Yes 2.5"  
 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 tank suction How are they protected wood & iron 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 14.3.08 of Stern Tube 14.3.08 Screw shaft and Propeller 14.3.08  
 Is the Screw Shaft Tunnel watertight No Is it fitted with a watertight door worked from

BOILERS, &c.—(Letter for record 5) Manufacturers of Steel Beardmore & Sons  
 Total Heating Surface of Boilers 900 sq ft Is Forced Draft fitted No No. and Description of Boilers One Cyl. Multi  
 Working Pressure 160 lbs Tested by hydraulic pressure to 320 lbs Date of test 31.1.08 No. of Certificate 1629  
 Can each boiler be worked separately Area of fire grate in each boiler 24.5 sq ft No. and Description of Safety Valves to  
 each boiler Two spring Area of each valve 3.14 sq ft Pressure to which they are adjusted 165 lbs Are they fitted with easing gear Yes  
 Smallest distance between boilers or uptakes and bunkers or woodwork 12" Mean dia. of boilers 10.6" Length 9.6" Material of shell plates Steel  
 Thickness 27" Range of tensile strength 28 - 32 tons Are the shell plates welded or flanged No Descrip. of riveting: cir. seams L.O.  
 long. seams D.B.S.D.R. Diameter of rivet holes in long. seams 1.76" Pitch of rivets 5.8" Lap of plates or width of butt straps 11.5"  
 Per centages of strength of longitudinal joint rivets 86.7 Working pressure of shell by rules 161 lbs Size of manhole in shell 16" x 12"  
 plate 80.2  
 Size of compensating ring 30" x 28" x 32" No. and Description of Furnaces in each boiler Two plain Material Steel Outside diameter 2' - 10"  
 Length of plain part top 6' - 4.2" Thickness of plates crown 21" Description of longitudinal joint Welded No. of strengthening rings 0  
 bottom 32" bottom 32" Back 32" Top 5" Bottom 5"  
 Working pressure of furnace by the rules 176 lbs Combustion chamber plates: Material Steel Thickness: Sides 5.8" Back 32" Top 5" Bottom 5"  
 Pitch of stays to ditto: Sides 8.5" x 8.5" Back 10" x 9" Top 8.5" x 7.5" If stays are fitted with nuts or riveted heads Nuts Working pressure by rules 164 lbs  
 Material of stays Steel Diameter at smallest part 1.5" Area supported by each stay 72.25 sq in Working pressure by rules 195 lbs End plates in steam space:  
 Material Steel Thickness 7.8" Pitch of stays 15" x 15" How are stays secured D. Nuts Working pressure by rules 161 lbs Material of stays Steel  
 Diameter at smallest part 2.5" Area supported by each stay 225 sq in Working pressure by rules 195 lbs Material of Front plates at bottom Steel  
 Thickness 7.8" Material of Lower back plate Steel Thickness 7.8" Greatest pitch of stays 14" x 9" Working pressure of plate by rules 191 lbs  
 Diameter of tubes 3" Pitch of tubes 4.5" x 4.5" Material of tube plates Steel Thickness: Front 7.8" Back 13.6" Mean pitch of stays 9"  
 Pitch across wide water spaces 14" Working pressures by rules 160 lbs Girders to Chamber tops: Material Steel Depth and  
 thickness of girder at centre 7.5" x 1.5" Length as per rule 26" Distance apart 7.5" Number and pitch of stays in each 2 - 8.5"  
 Working pressure by rules 246 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	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 and bottom end connecting rod bolts and nuts, two main bearing bolts and nuts, one set coupling bolts and nuts, one set each air, circulating, feed and bilge pump valves, a quantity of assorted bolts nuts etc*  
*The foregoing is a correct description,*  
*F. J. Galethorpe* Manufacturer.

Dates of Survey while building	During progress of work in shops—	SECRETARY 1907.—Jun 5. 12. 17. 19. 22. 26. 29. Jul 4. 8. 17. 23. 30 Aug 20. 23. 30 Sep 4. 9. 12. 19. 24
	During erection on board vessel—	Oct 10. 18. 28. Nov 1. 21. 26. 27 Dec 4. 13. 16. 20. 1908.—Jan 6. 14. 21. 27. 30. 31 Feb 6. 10. 20 Mar 2. 9. 14. 17. 19. 20. 26. 30
	Total No. of visits	50

Is the approved plan of main boiler forwarded herewith *No*

“ “ “ donkey “ “ “

Dates of Examination of principal parts—Cylinders *14.1.08* Slides *6.2.08* Covers *6.2.08* Pistons *14.1.08* Rods *14.1.08*  
 Connecting rods *14.1.08* Crank shaft *6.2.08* Thrust shaft *19.2.08* Tunnel shafts Screw shaft *19.2.08* Propeller *19.2.08*  
 Stern tube *6.1.08* Steam pipes tested *17.2.08* Engine and boiler seatings *14.3.08* Engines holding down bolts *20.3.08*  
 Completion of pumping arrangements *6.4.08* Boilers fixed *20.3.08* Engines tried under steam *6.4.08*  
 Main boiler safety valves adjusted *20.3.08* Thickness of adjusting washers *5/16" 5/16"*  
 Material of Crank shaft *Steel* Identification Mark on Do. *1109AH* Material of Thrust shaft *Steel* Identification Mark on Do. *1109AH*  
 Material of Tunnel shafts Identification Marks on Do. Material of Screw shafts *Steel* Identification Marks on Do. *1109AH*  
 Material of Steam Pipes *Solid drawn Copper* Test pressure *400 lbs per sq inch*

General Remarks (State quality of workmanship, opinions as to class, &c. *The engines and boiler of this vessel have been constructed under special survey the materials and workmanship are good. The boiler tested by hydraulic pressure, and with the engines fitted and secured on board, they are now in good order & safe working condition and respectfully submitted as being eligible in my opinion to be classed with the notation of \*L.M.C. 6.4.08 in the Register Book.*

*These engines and boiler are similar to those fitted on the Willet, Hull Report 2° 19775*

It is submitted that this vessel is eligible for  
 THE RECORD. *L.M.C. 4.08.*  
 ELEC. LIGHT.

The amount of Entry Fee..	£ 1 : : :	When applied for.	
Special .. .. .	£ 8 . 5 :	14.4.1908	
Donkey Boiler Fee .. ..	£ : : :	When received,	
Travelling Expenses (if any) £	: 6 4 :	7.7.08	

Committee's Minute *THUR. 16 APL 1908*  
 Assigned *+ LMC 4.08*

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

