

# REPORT ON MACHINERY.

No. 23281

Received at London Office SAT. 7 JAN 1911

Date of writing Report 17.12.10 When handed in at Local Office 17.12.10 Port of Hull  
 No. in Survey held at Hull & Goole Date, First Survey Apr 21<sup>st</sup> Last Survey Dec 17<sup>th</sup> 1910.  
 Reg. Book. 927 on the Steel S. S. Trent (Number of Visits 54)  
 Master Goole Built at Goole By whom built Goole S. B. R. Co. Ltd Tons { Gross 530 Net 240  
 Engines made at } Hull By whom made } Messrs when made 1910  
 Boilers made at } Hull By whom made } Earle's Co. Ltd. when made 1910  
 Registered Horse Power 78 Owners E. S. Hutchinson Port belonging to Hull  
 Nom. Horse Power as per Section 28 78 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 13-21-35 Length of Stroke 24 Revs. per minute 112 Dia. of Screw shaft 8.25 Material of Iron  
 as fitted 8.25 screw shaft  
 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 No 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 37  
 Dia. of Tunnel shaft 6.49 Dia. of Crank shaft journals 6.31 Dia. of Crank pin 7 Size of Crank webs 3 1/2 x 4 1/2 Dia. of thrust shaft under  
 collars 7 Dia. of screw 9-9 Pitch of Screw 11-0 No. of Blades 4 State whether moveable No Total surface 30 sq  
 No. of Feed pumps 2 Diameter of ditto 2 1/2 Stroke 12 Can one be overhauled while the other is at work Yes  
 No. of Bilge pumps 2 Diameter of ditto 2 1/2 Stroke 12 Can one be overhauled while the other is at work Yes  
 No. of Donkey Engines Two Sizes of Pumps 6x6x6 & 4 1/2 x 2 1/2 x 5 No. and size of Suctions connected to both Bilge and Donkey pumps  
 In Engine Room Two 2 1/2, One 3 In Holds, &c. One 2 1/2 in each, the fore peak tank, fore  
 hold, fore tank, aft tank, tunnel well, aft peak tank, Two 2 1/2 in aft hold.  
 No. of Bilge Injections 1 sizes 3 1/2 Connected to condenser, or to circulating pump pump Is a separate Donkey Suction fitted in Engine room & size Yes 3  
 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 None  
 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 None How are they protected —  
 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 26.10.10 of Stern Tube 10.10.10 Screw shaft and Propeller 10.10.10  
 Is the Screw Shaft Tunnel watertight Yes Is it fitted with a watertight door Yes worked from top platform

BOILERS, &c.—(Letter for record 5) Manufacturers of Steel Phoenix A.M. & F. Co. B. Hoerde Westfalia  
 Total Heating Surface of Boilers 1373 sq Is Forced Draft fitted No No. and Description of Boilers One Cyl. Multi S. Ended.  
 Working Pressure 180 lbs Tested by hydraulic pressure to 360 lbs Date of test 16.7.10 No. of Certificate 1759  
 Can each boiler be worked separately — Area of fire grate in each boiler 40.5 sq No. and Description of Safety Valves to  
 each boiler Two Spring Area of each valve 4.9 sq 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 9 Mean dia. of boilers 12-6 Length 10-3 Material of shell plates S  
 Thickness 1 1/2 Range of tensile strength 28-32 Are the shell plates welded or flanged No Descrip. of riveting: cir. seams L.D.  
 long. seams D.B.S.P. Diameter of rivet holes in long. seams 1 1/2 Pitch of rivets 7 1/2 Lap of plates or width of butt straps 16  
 Per centages of strength of longitudinal joint rivets 90 Working pressure of shell by rules 181 lbs Size of manhole in shell 16 x 12  
End plate flanged plate 85.4 No. and Description of Furnaces in each boiler 3 plain Material S Outside diameter 38 1/2  
 Length of plain part top 4-6 bottom 7-9 Thickness of plates crown 4 1/2 bottom 6 1/4 Description of longitudinal joint Welded No. of strengthening rings 0  
 Working pressure of furnace by the rules 180 lbs Combustion chamber plates: Material S Thickness: Sides 1 1/2 Back 1 1/2 Top 1 1/2 Bottom 1 1/2  
 Pitch of stays to ditto: Sides 8 1/2 x 7 1/2 Back 9 x 7 1/2 Top 8 1/2 x 7 1/2 If stays are fitted with nuts or riveted heads Nuts Working pressure by rules 196 lbs  
 Material of stays S Diameter at smallest part 1 1/2 Area supported by each stay 93.375 sq Working pressure by rules 205 lbs End plates in steam space:  
 Material S Thickness 1 1/2 Pitch of stays 15 x 17 How are stays secured D. N. Working pressure by rules 186 lbs Material of stays S  
 Diameter at smallest part 5.16 Area supported by each stay 255 sq Working pressure by rules 210 lbs Material of Front plates at bottom S  
 Thickness 3/4 Material of Lower back plate S Thickness 3/8 Greatest pitch of stays 13 1/2 x 9 Working pressure of plate by rules 206 lbs  
 Diameter of tubes 3 1/4 Pitch of tubes 4 1/2 x 4 1/2 Material of tube plates S Thickness: Front 3/8 Back 3/8 Mean pitch of stays 9  
 Pitch across wide water spaces 13 1/2 Working pressures by rules 189 lbs Girders to Chamber tops: Material S Depth and  
 thickness of girder at centre 8 x 1 1/2 Length as per rule 2-8 Distance apart 8 1/2 Number and pitch of stays in each Three 7 1/2  
 Working pressure by rules 181 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 few boiler and condensers tubes, main feed check valves, & a quantity of assorted bolts nuts etc.*

The foregoing is a correct description,  
*F. J. Salethorpe* Manufacturer.

Dates of Survey while building: During progress of work in shops - - SECRETARY: 1910: Apr 21, 27, May 4, 10, 23, 30, June 2, 7, 9, 16, July 5, 15, 16, 21, 25, 27, Aug 6, 10, 13, Aug 17, 22, 29, 31, Sep 1, 6, 13, 15, 19, 21, 27, 29, Oct 3, 5, 7, 10, 13, 17, 24, 26, 27, Nov 1, 2, 5, 8, 29, Dec 2, 3, 5, 6, Dec 7, 8, 15, 16, 17

Total No. of visits *54.* Is the approved plan of main boiler forwarded herewith *Yes*

Dates of Examination of principal parts—Cylinders *19.9.10* Slides *13.10.10* Covers *21.9.10* Pistons *13.10.10* Rods *25.7.10*  
 Connecting rods *21.4.10* Crank shaft *29.8.10* Thrust shaft *22.8.10* Tunnel shafts *2.12.10* Screw shaft *27.9.10* Propeller *27.9.10*  
 Stern tube *29.9.10* Steam pipes tested *5.12.10* Engine and boiler seatings *2.11.10* Engines holding down bolts *7.12.10*  
 Completion of pumping arrangements *16.12.10* Boilers fixed *7.12.10* Engines tried under steam *8.12.10*  
 Main boiler safety valves adjusted *8.12.10* Thickness of adjusting washers *3/8 3/8"*

Material of Crank shaft *Steel* Identification Mark on Do. *2521 WDH* Material of Thrust shaft *Iron* Identification Mark on Do. *189GH*  
 Material of Tunnel shafts *Iron* Identification Marks on Do. *189GH* Material of Screw shafts *Iron* Identification Marks on Do. *189GH*  
 Material of Steam Pipes *Solid drawn copper* Test pressure *360 lbs*

**General Remarks** (State quality of workmanship, opinions as to class, &c. *The engines and boiler of this vessel have been constructed under special survey in accordance with the Rules. The materials and workmanship are good. The boiler tested by hydraulic pressure, and with the engines secured on board, and tested under steam and found satisfactory, they are now in good order and safe working condition and respectfully submitted as being eligible in my opinion to be classed with the notation of *L.M.C. 12.10* in the Register Book.*

It is submitted that this vessel is eligible for THE RECORD. + LMC 12.10.

*J.P.R.*  
*J.W.D.*  
*9/1/11*

The amount of Entry Fee .. £ 1 : : : : When applied for, 6-1-1911.  
 Special .. £ 11 : 14 : : :  
 Donkey Boiler Fee .. £ : : : : When received, 18.3.11  
 Travelling Expenses (if any) .. £ : 12 : 8 : : :  
 Committee's Minute

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

TUE. 10 JAN 1911

Assigned

+ L.M.C. 12.10

MACHINERY CERTIFICATE WRITTEN.



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