

## REPORT ON MACHINERY.

No. 53654

Port of Newcastle on Tyne

Received at London Office THUR. 10 OCT. 1907

No. in Survey held at *S. Shields* Date, first Survey *March 20* Last Survey *4. 10. 1907*  
 Reg. Book. on the *S. S. "SPHEROID"* (Number of Visits *41*)  
 Master *E. Norris* Built at *S. Shields* By whom built *J. Readhead & Sons Ltd.* When built *1907*  
 Engines made at *S. Shields* By whom made *J. Readhead & Sons Ltd.* when made *1907*  
 Boilers made at *S. Shields* By whom made *J. Readhead & Sons Ltd.* when made *1907*  
 Registered Horse Power *410* Owners *Scrutton Sons and Co.* Port belonging to *London*  
 Nom. Horse Power as per Section 28 *409* Is Refrigerating Machinery fitted for cargo purposes *No* Is Electric Light fitted *No*

ENGINES, &c.—Description of Engines *Triple Compound*. No. of Cylinders *3*. No. of Cranks *3*  
 Dia. of Cylinders *26-43-71* Length of Stroke *48* Revs. per minute *65* Dia. of Screw shaft *as per rule 14.29* Material of *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 *Yes* If two  
 liners are fitted, is the shaft lapped or protected between the liners *Yes* Length of stern bush *4'-11"*  
 Dia. of Tunnel shaft *as per rule 13.43* Dia. of Crank shaft journals *as per rule 13.43* Dia. of Crank pin *13 3/4* Size of Crank webs *18 x 9 1/2* Dia. of thrust shaft under  
 collars *14 1/2* Dia. of screw *17-0* Pitch of Screw *17-0/19-6* No. of Blades *4* State whether moveable *No* Total surface *85 ft*  
 No. of Feed pumps *2* Diameter of ditto *4 1/2* Stroke *30* Can one be overhauled while the other is at work *Yes*  
 No. of Bilge pumps *2* Diameter of ditto *4 1/2* Stroke *30* Can one be overhauled while the other is at work *Yes*  
 No. of Donkey Engines *2* Sizes of Pumps *8 1/2 x 7 1/2 x 10* No. and size of Suctions connected to both Bilge and Donkey pumps  
 In Engine Room *Three of 3 1/2" Bore* In Holds, &c. *1. Hdd. 2-3 1/2" Bore*  
*2. Hdd. 2-3 1/2" 3. Hdd. 2-3 1/2" 4. Hdd. 2-3 1/2" 5. Well. 1-2 1/2" Bore*  
 No. of Bilge Injections *1* sizes *6 3/4"* Connected to condenser, or to circulating pump *C.P.* Is a separate Donkey Suction fitted in Engine room & size *2 1/2"*  
 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 *None* How are they protected *Yes*  
 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 *13. 8. 07* of Stern Tube *13. 8. 07* Screw shaft and Propeller *21. 8. 07*  
 Is the Screw Shaft Tunnel watertight *Yes* Is it fitted with a watertight door *Yes* worked from *Top Platform*

BOILERS, &c.—(Letter for record *r.*) Manufacturers of Steel *Spencer Henderson*  
 Total Heating Surface of Boilers *5425* Is Forced Draft fitted *Yes* No. and Description of Boilers *Two. Cyl. built. S. End.*  
 Working Pressure *180 lbs.* Tested by hydraulic pressure to *360 lbs.* Date of tests *13. 8. 07* No. of Certificate *5. 8. 7556*  
 Can each boiler be worked separately *Yes* Area of fire grate in each boiler *57.75* No. and Description of Safety Valves to  
 each boiler *2. Spring* Area of each valve *9.6* Pressure to which they are adjusted *185 lbs.* Are they fitted with easing gear *Yes*  
 Smallest distance between boilers *on uptakes and bunkers or woodwork* *15"* Mean dia. of boilers *15'-0"* Length *12-3* Material of shell plates *S.*  
 Thickness *1 1/2* Range of tensile strength *28/32 T.* Are the shell plates welded or flanged *No* Descrip. of riveting: cir. seams *D.O.R.*  
 long. seams *D.B.S.* Diameter of rivet holes in long. seams *1 1/2* Pitch of rivets *9 1/2* Lap of plates or width of butt straps *2 1/2*  
 Per centages of strength of longitudinal joint *91.8* Working pressure of shell by rules *219 lbs.* Size of manhole in shell *16" x 12"*  
 Size of compensating ring *8" x 1 1/2* No. and Description of Furnaces in each boiler *3. Diagonal* Material *S.* Outside diameter *44"*  
 Length of plain part *top* *bottom* Thickness of plates *19/32* Description of longitudinal joint *Weld.* No. of strengthening rings *Yes*  
 Working pressure of furnace by the rules *198* Combustion chamber plates: Material *S.* Thickness: Sides *7/8* Back *7/8* Top *7/8* Bottom *15/16*  
 Pitch of stays to ditto: Sides *8 1/4* Back *8 1/4* Top *9 x 8* If stays are fitted with nuts or riveted heads *None* Working pressure by rules *186 lbs.*  
 Material of stays *I* Diameter at smallest part *1.99* Area supported by each stay *72* Working pressure by rules *207* End plates in steam space:  
 Material *S.* Thickness *19/32* Pitch of stays *18 1/2* How are stays secured *D.N.W.* Working pressure by rules *234 lbs.* Material of stays *S.*  
 Diameter at smallest part *7.24* Area supported by each stay *314* Working pressure by rules *230* Material of Front plates at bottom *S.*  
 Thickness *3/4* Material of Lower back plate *S.* Thickness *13/16* Greatest pitch of stays *12 x 8 1/4* Working pressure of plate by rules *228*  
 Diameter of tubes *2 1/2* Pitch of tubes *3 3/4* Material of tube plates *S.* Thickness: Front *3/4* Back *13/16* Mean pitch of stays *9 3/8*  
 Pitch across wide water spaces *13 1/2* Working pressures by rules *266 lbs.* Girders to Chamber tops: Material *S.* Depth and  
 thickness of girder at centre *9 1/2 x 1 1/2* Length as per rule *32 7/8* Distance apart *9* Number and pitch of stays in each *2-8*  
 Working pressure by rules *186 lbs.* Superheater or Steam chest; how connected to boiler *None* Can the superheater be shut off and the boiler worked  
 separately *Yes* Diameter *Yes* Length *Yes* Thickness of shell plates *Yes* Material *Yes* Description of longitudinal joint *Yes* Diam. of rivet  
 holes *Yes* Pitch of rivets *Yes* Working pressure of shell by rules *Yes* Diameter of flue *Yes* Material of flue plates *Yes* Thickness *Yes*  
 If stiffened with rings *Yes* Distance between rings *Yes* Working pressure by rules *Yes* End plates: Thickness *Yes* How stayed *Yes*  
 Working pressure of end plates *Yes* Area of safety valves to superheater *Yes* Are they fitted with easing gear *Yes*

W665-0068



## VERTICAL DONKEY BOILER—Manufacturers of Steel

Particulars given on attached Form.

No. \_\_\_\_\_ Description \_\_\_\_\_ When made \_\_\_\_\_ Where fixed \_\_\_\_\_  
 Made at \_\_\_\_\_ By whom made \_\_\_\_\_  
 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 \_\_\_\_\_ Rivets \_\_\_\_\_ Plates \_\_\_\_\_  
 Dia. of rivet holes \_\_\_\_\_ Whether punched or drilled \_\_\_\_\_ Pitch of rivets \_\_\_\_\_ Lap of plating \_\_\_\_\_ Per centage of strength of joint \_\_\_\_\_  
 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 main Bearing Belts & nuts, Two Top End. Belts, Two Bottom end Belts, One set Coupling Belts, One set, and Circulating Feed and Bilge Pump Valves, One Propeller Shaft, One Propeller, Assorted Belts and Iron.

The foregoing is a correct description,

J. H. Headhead Arms Manufacturer.

Dates of Survey while building  
 During progress of work in shops— 1907. March 22. April 12. 24. 26. May 2. 9. 14. 17. 22. 28. June 3. 10. 13. 17. 21. July 1. 5. 9. 10. 14. 17. 24. 29. Aug. 1. 7. 12. 19. 21. 23. 27. 29. 30. Sept. 1. 10.  
 During erection on board vessel— 1907. Oct. 1. 4.  
 Total No. of visits— 41.

Is the approved plan of main boiler forwarded herewith Yes

" " " donkey " " " Yes.

Dates of Examination of principal parts—Cylinders 9. 7. 07. Slides 19. 8. 07. Covers 17. 7. 07. Pistons 1. 7. 07. Rods 17. 7. 07.  
 Connecting rods 17. 7. 07. Crank shaft 13. 8. 07. Thrust shaft 13. 8. 07. Tunnel shafts 13. 8. 07. Screw shaft 13. 8. 07. Propeller 29. 7. 07.  
 Stern tube 17. 7. 07. Steam pipes tested 10. 9. 07. Engine and boiler seatings 21. 8. 07. Engines holding down bolts 6. 9. 07.  
 Completion of pumping arrangements 1. 10. 07. Boilers fixed 18. 9. 07. Engines tried under steam 19. 9. 07.  
 Main boiler safety valves adjusted 19. 9. 07. Thickness of adjusting washers  $P\frac{1}{2}$   $S\frac{1}{2}$   $P\frac{1}{2}$   $S\frac{1}{2}$  Length 76.  
 Material of Crank shaft Steel. Identification Mark on Do. H.K. 6. 07. Material of Thrust shaft Steel. Identification Mark on Do. H.K. 5. 07.  
 Material of Tunnel shafts Iron. Identification Marks on Do. 13. 8. 07. Material of Screw shafts Iron. Identification Marks on Do. 13. 8. 07.  
 Material of Steam Pipes Copper. Test pressure 360 lb. 0. 1.

General Remarks (State quality of workmanship, opinions as to class, &amp;c. The above machinery and.

Boilers have been constructed under special survey.  
 The materials and workmanship are sound and good and the manner of fitting on board is satisfactory.  
 The vessel is eligible and my opinion for record + L.M.C. 10. 07.

It is submitted that  
 this vessel is eligible for  
 THE RECORD + LMC 10. 07.

F.D.

The amount of Entry Fee. £ 3 : : : When applied for,  
 Special . . . £ 40 : 9 : : - 9 OCT 1907  
 Donkey Boiler Fee . . . £ : : : When received,  
 Travelling Expenses (if any) £ : : : 11. 10. 07

Committee's Minute

Assigned

FRI. 11 OCT 1907

+ L.M.C. 10. 07.

MACHINERY CERTIFICATE  
WRITTEN.

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Foundation