

## REPORT ON MACHINERY.

No. 62855

Date of writing Report 14<sup>th</sup> Aug. 1912, When handed in at Local Office 17<sup>th</sup> Aug. 1912 Port of Newcastle-on-Tyne  
 No. in Survey held at South Shields Date, First Survey 19<sup>th</sup> Dec 1911 Last Survey 13<sup>th</sup> August 1912  
 Reg. Book. 4 Sup. on the S/s "SABA" (Number of Visits 48)  
 Master - Norris Built at South Shields By whom built John Readhead & Sons Ltd. Tons Gross 4257 Net 2687  
 Engines made at South Shields By whom made John Readhead & Sons Ltd. when made 1912  
 Boilers made at South Shields By whom made John Readhead & Sons Ltd. when made 1912  
 Registered Horse Power Owners Scrutton Sons & Co. Port belonging to London  
 Nom. Horse Power, as per Section 28 487 Is Refrigerating Machinery fitted for cargo purposes No Is Electric Light fitted No

ENGINES, &c.—Description of Engines Triple Expansion Surface Condensing No. of Cylinders 3 No. of Cranks 3  
 Dia. of Cylinders 28" 46" 75" Length of Stroke 48" Revs. per minute 14.98" Material of screw shaft as fitted 15.2" 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 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 5'-1"  
 Dia. of Tunnel shaft as per rule 13.64" Dia. of Crank shaft journals as per rule 14.33" Dia. of Crank pin 14.2" Size of Crank webs 18" X 10" Dia. of thrust shaft under collars 14.2" Dia. of screw 17'-9" Pitch of Screw 17'-0" / 19'-6" No. of Blades 4 State whether moveable No Total surface 95 ft<sup>2</sup>  
 No. of Feed pumps 2 Diameter of ditto 4.2" Stroke 30" Can one be overhauled while the other is at work Yes  
 No. of Bilge pumps 2 Diameter of ditto 4.2" Stroke 30" Can one be overhauled while the other is at work Yes  
 No. of Donkey Engines 3 Sizes of Pumps 8" X 9 1/2" X 10" - 7" X 4 1/2" X 7" No. and size of Suctions connected to both Bilge and Donkey pumps In Engine Room Three - Port 3 1/2", Centre 3 1/2", Starboard 3 1/2" In Holds, &c. Two in each hold - Port 3 1/2", Starboard 3 1/2" Tunnel well suction 2 1/2" Four in No 3 hold - 3 1/2"  
 No. of Bilge Injections 1 sizes 6 3/4" Connected to condenser, or to circulating pump Pump Is a separate Donkey Suction fitted in Engine room & size Yes, 3 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  
 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 4-6-12 of Stern Tube 4-6-12 Screw shaft and Propeller 24-6-12  
 Is the Screw Shaft Tunnel watertight Yes Is it fitted with a watertight door Yes worked from Top platform

BOILERS, &c.—(Letter for record +) Manufacturers of Steel J. Spencer & Sons Ltd.

Total Heating Surface of Boilers 6430 ft<sup>2</sup> Is Forced Draft fitted Yes No. and Description of Boilers Two single ended multi.  
 Working Pressure 180 lbs. Tested by hydraulic pressure to 360 lbs Date of test 31-5-12 No. of Certificate 8320  
 Can each boiler be worked separately Yes Area of fire grate in each boiler 68 ft<sup>2</sup> No. and Description of Safety Valves to each boiler Two - spring loaded Area of each valve 11.04 ft<sup>2</sup> 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 1'-8" Mean dia. of boilers 16'-3" Length 12'-3" Material of shell plates steel  
 Thickness 1 1/2" Range of tensile strength 29/33 tons Are the shell plates welded or flanged No Descrip. of riveting: cir. seams D.R. Lap. long. seams J.R. Butt strap Diameter of rivet holes in long. seams 1 1/2" Pitch of rivets 10 1/4" Lap of plates or width of butt straps 1'-10 1/2"  
 Per centages of strength of longitudinal joint rivets 89.25% plate 25.36% Working pressure of shell by rules 220 lbs Size of manhole in shell 16" X 12"  
 Size of compensating ring 9" X 1 1/2" No. and Description of Furnaces in each boiler 4 - Deighlams Material steel Outside diameter 3'-3"  
 Length of plain part top bottom Thickness of plates crown bottom 1 1/32" Description of longitudinal joint weld No. of strengthening rings  
 Working pressure of furnace by the rules 210 lbs Combustion chamber plates: Material steel Thickness: Sides 24/32" Back 24/32" Top 24/32" Bottom 15/16"  
 Pitch of stays to ditto: Sides 11" X 10" Back 11" X 10" Top 10 1/2" X 10" If stays are fitted with nuts or riveted heads Nuts Working pressure by rules 222 lbs  
 Material of stays Iron Diameter at smallest part 3-14 ft<sup>2</sup> Area supported by each stay 110 ft<sup>2</sup> Working pressure by rules 217 lbs End plates in steam space: Material steel Thickness 1 1/16" Pitch of stays 22" X 19 1/2" How are stays secured Nuts & washers Working pressure by rules 188 lbs Material of stays steel  
 Diameter at smallest part 9-32 ft<sup>2</sup> Area supported by each stay 429 ft<sup>2</sup> Working pressure by rules 238 lbs Material of Front plates at bottom steel  
 Thickness 7/8" Material of Lower back plate steel Thickness 15/16" Greatest pitch of stays 13 3/4" X 10" Working pressure of plate by rules 210 lbs  
 Diameter of tubes 2 1/2" Pitch of tubes 3 3/4" Material of tube plates steel Thickness: Front 15/16" Back 7/8" Mean pitch of stays 4 1/2"  
 Pitch across wide water spaces 13 1/2" Working pressures by rules 185 lbs Girders to Chamber tops: Material steel Depth and thickness of girder at centre 9 1/2" X 2" Length as per rule 34 3/4" Distance apart 10 1/2" Number and pitch of stays in each 2-10"  
 Working pressure by rules 225 lbs 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 Safe  
 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 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  
 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 Main bearing bolts; two top end bolts & nuts; two bottom end bolts & nuts; 1 set of coupling bolts; one set each of air, feed, bilge & circulation pump valves; propeller & propeller shaft; assorted bolts & nuts, iron.

The foregoing is a correct description,

*John Houston*

Manufacturer.

Dates of Survey while building  
 During progress of work in shops -- 1911 Dec. 19, 1912 Jan. 22, 29, Feb. 15, 22, 28, 29, Mar. 4, 7, 12, 18, 22, 27, 29, Apr. 1, 10  
 During erection on board vessel -- 22, 24, May, 2, 6, 8, 16, 17, 21, 29, 30, 31, June, 4, 6, 10, 17, 24, July, 1, 3, 5, 10, 12, 15, 16, 18, 22, 24, 25, Aug. 6, 13  
 Total No. of visits 48

Is the approved plan of main boiler forwarded herewith Yes  
 " " " donkey " " " Yes

Dates of Examination of principal parts—Cylinders 22-3-12 Slides 1-4-12 Covers 24-3-12 Pistons 12-4-12 Rods 24-4-12  
 Connecting rods 24-4-12 Crank shaft 2-5-12 Thrust shaft 2-5-12 Tunnel shafts 4-6-12 Screw shaft 4-6-12 Propeller 29-5-12  
 Stern tube 21-5-12 Steam pipes tested 15-4-12 Engine and boiler seatings 30-5-12 Engines holding down bolts 16-4-12  
 Completion of pumping arrangements 24-4-12 Boilers fixed 5-7-12 Engines tried under steam 25-4-12  
 Main boiler safety valves adjusted 25-4-12 Thickness of adjusting washers Star Blr. S.V. 1/2" 7.4 1/2" Port Blr. S.V. 1/2" 7.4 1/2"  
 Material of Crank shaft Steel Identification Mark on Do. 3641 H.K. 3-12 Material of Thrust shaft Steel Identification Mark on Do. 1389 M.B. 3-12  
 Material of Tunnel shafts Steel Identification Marks on Do. 4645 M.R. Material of Screw shafts Iron Identification Marks on Do. 4645 M.R.  
 Material of Steam Pipes Solid Drawn Copper 6 1/2" Bore L.W.S. Test pressure 360 lbs per square inch.

General Remarks (State quality of workmanship, opinions as to class, &c.)

The machinery of this vessel has been constructed under special survey, & the materials & workmanship are sound & good.  
 The main engines & auxiliary machinery have been tried under steam & the boiler safety valves adjusted to their working pressures.  
 The machinery of this vessel is now in a good & safe working condition, & eligible in my opinion to have the record + L.M.C. 8-12 in the Register Book.

It is submitted that this vessel is eligible for THE RECORD, + L.M.C. 8.12

F.D.

*J.W.D.*

*E.P.*

The amount of Entry Fee .. £ 3-0-0  
 Special .. £ 44-4-0  
 Donkey Boiler Fee .. £ 2-2-0  
 Travelling Expenses (if any) £ : :  
 When applied for, AUG 20 1912  
 When received, 22 9 12

*John Houston*  
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

Committee's Minute FRI. AUG. 23. 1912

Assigned *thmc 8.12*