

## REPORT ON MACHINERY.

No. 14522

Date of writing Report 11th Oct 1912 When handed in at Local Office 11th Oct 1912 Port of West Hartlepool  
 No. in Survey held at West Hartlepool Date, First Survey 14th Dec. Last Survey 11th Oct. 1912  
 Reg. Book. on the Steel Steamer Bonfield (Number of Visits 31)

Master Built at West Hartlepool By whom built W. Hay & Co. Ltd Tons Gross Net When built 1912

Engines made at West Hartlepool By whom made Central Marine & Work when made 1912

Boilers made at West Hartlepool By whom made Central Marine & Work when made 1912

Registered Horse Power Owners Port belonging to Newcastle

Nom. Horse Power as per Section 28 267 Is Refrigerating Machinery fitted for cargo purposes No Is Electric Light fitted No

ENGINES, &c.—Description of Engines Triple Compound No. of Cylinders Three No. of Cranks Three

Dia. of Cylinders 23" 36 1/2" 62" Length of Stroke 42" Revs. per minute 65 Dia. of Screw shaft as per rule 12 5/8" Material of 1 Unit screw shaft as fitted 13 1/4"

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 58"

Dia. of Tunnel shaft as per rule 11 1/4" Dia. of Crank shaft journals as per rule 11 3/8" Dia. of Crank pin 12 1/4" Size of Crank webs 17-7 1/4" Dia. of thrust shaft under collars 12 1/4" Dia. of screw 15 1/8" Pitch of Screw 15 1/8" No. of Blades 4 State whether moveable No Total surface 80 sq ft

No. of Feed pumps Two Diameter of ditto 3" Stroke 20" Can one be overhauled while the other is at work Yes

No. of Bilge pumps Two Diameter of ditto 3 1/2" Stroke 20" Can one be overhauled while the other is at work Yes

No. of Donkey Engines Two Sizes of Pumps 8" P. & 4" C. No. and size of Suctions connected to both Bilge and Donkey pumps In Engine Room Three 3 1/2" In Holds, &c. One 3 1/2"

No. of Bilge Injections one sizes 6 1/2" Connected to condenser, or to circulating pump Yes 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 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 9/9/12 of Stern Tube 16/9/12 Screw shaft and Propeller 24/9/12

Is the Screw Shaft Tunnel watertight Yes Is it fitted with a watertight door Yes worked from 1st Staircase

BOILERS, &c.—(Letter for record S) Manufacturers of Steel J. & C. Brown & Co.

Total Heating Surface of Boilers 4082 Is Forced Draft fitted No No. and Description of Boilers Two Single End

Working Pressure 180 lb Tested by hydraulic pressure to 360 lb Date of test 19/9/12 No. of Certificate 3293

Can each boiler be worked separately Yes Area of fire grate in each boiler 52 sq ft No. and Description of Safety Valves to each boiler Two Spring Area of each valve P. 290 Pressure to which they are adjusted 185 lb Are they fitted with easing gear Yes

Smallest distance between boilers or uptakes and bunkers or woodwork 21" Mean dia. of boilers 15 1/8" Length 11 1/8" Material of shell plates steel

Thickness 1 1/2" Range of tensile strength 22-23 Are the shell plates welded or flanged both Descrip. of riveting: cir. seams 3/16" with long. seams all up 3/16" Diameter of rivet holes in long. seams 15/16" Pitch of rivets 9 1/16" Lap of plates or width of butt straps 19 1/4"

Per centages of strength of longitudinal joint PP 2 Working pressure of shell by rules 181 lb Size of manhole in End 16" 12"

Size of compensating ring Flanged No. and Description of Furnaces in each boiler 3 Union Material steel Outside diameter 46 1/8"

Length of plain part top bottom Thickness of plates 9 1/16" Description of longitudinal joint welded No. of strengthening rings South

Working pressure of furnace by the rules 191 lb Combustion chamber plates: Material steel Thickness: Sides 10 1/16" Back 10 1/16" Top 10 1/16" Bottom 14 1/16"

Pitch of stays to ditto: Sides 9 1/8" Back 8 1/4" Top 8 1/2" If stays are fitted with nuts or riveted heads both Working pressure by rules 181 lb

Material of stays steel Diameter at smallest part 1 1/2" Area supported by each stay 8 1/2" Working pressure by rules 192 lb End plates in steam space: Material steel Thickness 1 7/16" Pitch of stays 22-19" How are stays secured all steel Working pressure by rules 182 lb Material of stays steel

Diameter at smallest part 3 1/16" Area supported by each stay 22-19" Working pressure by rules 195 lb Material of Front plates at bottom steel

Thickness 1" Material of Lower back plate steel Thickness 1 7/16" Greatest pitch of stays 15 1/2" Working pressure of plate by rules 180 lb

Diameter of tubes 3 1/2" Pitch of tubes 4 1/2" Material of tube plates steel Thickness: Front 1" Back 1 1/16" Mean pitch of stays 9"

Pitch across wide water spaces 14 1/16" Working pressures by rules 189 lb Girders to Chamber tops: Material steel Depth and thickness of girder at centre 9-1 1/4" Length as per rule 32 1/8" Distance apart 7 1/2" Number and pitch of stays in each three 8 1/2"

Working pressure by rules 180 lb 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 Lloyd's Register

Working pressure of end plates Area of safety valves to superheater Are they fitted with easing gear Foundation

003474-003478-0010

*Horizontal*  
**VERTICAL DONKEY BOILER—** Manufacturers of Steel *As per Report attached hereto*

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 casing 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 \_\_\_\_\_  
 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 top end bolts. Two bottom end bolts. Two main bearing bolts. One set coupling bolts. One set feed pump valve. One set bridge pump valve. One set for piston springs. Propeller. Bolts. Nuts. &c.*

FOR THE CENTRAL MARINE ENGINE WORKS,  
 (Ed. Quay & Co. St.)

The foregoing is a correct description,

Manufacturer.

*Thames & Ebb*  
 MANAGER.

Dates of Survey while building { During progress of work in shops - - } Mar 14 Apr 24 May 1 3 6 7 8 9 10 13 14 15 16 17 20 21 22 23 24 25 30 31 Jun 3 4 5 6 7 10 11 12 13 14 18 19 20 24 27 28 Jul 1 2 4  
 { During erection on board vessel - - - } 8 9 10 11 12 15 16 17 18 19 20 22 23 24 25 26 31 Aug 1 12 15 16 19 20 22 26 27 28 Sept 9 10 12 13 16 17 18 20 26 Oct 1 4 11  
 Total No. of visits **81.**

Is the approved plan of main boiler forwarded herewith *Yes* ✓

" " " donkey " " " *Yes* ✓

Dates of Examination of principal parts—Cylinders *16/7/12* Slides *16/7/12* Covers *16/7/12* Pistons *16/7/12* Rods *16/7/12*  
 Connecting rods *16/7/12* Crank shaft *5/7/12* Thrust shaft *5/7/12* Tunnel shafts *18/9/12* Screw shaft *11/6/12* Propeller *19/8/12*  
 Stern tube *10/9/12* Steam pipes tested *20/6/12* *24/9/12* Engine and boiler seatings *12/9/12* Engines holding down bolts *20/9/12*  
 Completion of pumping arrangements *4/10/12* Boilers fixed *4/10/12* Engines tried under steam *4/10/12*  
 Main boiler safety valves adjusted *4/10/12* Thickness of adjusting washers *P 25/32. 5 7/8* *Shl P 14/16 8 45/64*  
 Material of Crank shaft *Steel* Identification Mark on Do. *5201* Material of Thrust shaft *Steel* Identification Mark on Do. *5201*  
 Material of Tunnel shafts *Steel* Identification Marks on Do. *5201* Material of Screw shafts *Steel* Identification Marks on Do. *5201*  
 Material of Steam Pipes *Steel* ✓ Test pressure *600 lb.* ✓

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

*Evaporator coils tested to 400 lb. and body to 50 lb.* ✓

*The Machinery and Boilers of this Steamer have been constructed under Special Survey, and placed on board in accordance with The Society's Rules. They are now in my opinion in safe working condition, and the case is respectfully submitted for the notification + L M C 10-12 in The Register Book.*

*It is submitted that this vessel is eligible for THE RECORD. + L M C 10.12.*

The amount of Entry Fee £ *2* : *0* :  
 Special .. .. £ *33* : *7* :  
 Donkey Boiler Fee .. .. £ : :  
 Travelling Expenses (if any) £ : :  
 When applied for, *22.10.12*  
 When received, *24.10.12*

*J.W.D.*  
*27/10/12*  
*Samuel James, Esq.*  
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

Committee's Minute

FRI. OCT. 25. 1912

Assigned

*+ L M C 10.12*



© 2020

Lloyd's Register Foundation