

REPORT ON MACHINERY.

No. 13129

FRI. NOV 23 1906

Port of West Hartlepool

Received at London Office

19

No. in Survey held at West Hartlepool Date, first Survey 24th May Last Survey 21st Jan 1906
Reg. Book. 53 on the Steel Steamer Ben Lomond Number of Visits 82 Gross 2813.56
Master Owen Russell Built at West Hartlepool By whom built W Gray & Co Ltd Tons Net 1795.06
Engines made at West Hartlepool By whom made Central Marine & Works when made 1906 When built 1906
Boilers made at West Hartlepool By whom made Central Marine & Works when made 1906
Registered Horse Power 287 Owners Horizon Shipping Co Ltd Port belonging to Newcastle
Nom. Horse Power as per Section 28 287 Is Refrigerating Machinery fitted for cargo purposes No Is Electric Light fitted No

ENGINES, &c.—Description of Engines Simple Compound No. of Cylinders Three No. of Cranks Three
Dia. of Cylinders 23 1/2 38 64 Length of Stroke 42 Revs. per minute 65 Dia. of Screw shaft 1 1/2 as per rule 1 1/2 Material of screw shaft Steel
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 No If two
liners are fitted, is the shaft lapped or protected between the liners No Length of stern bush 56
Dia. of Tunnel shaft 11.62 as per rule 12.2 Dia. of Crank shaft journals 12.2 as per rule 12.2 Dia. of Crank pin 12 1/2 Size of Crank webs 7 1/2 Dia. of thrust shaft under
collars 12 1/2 Dia. of screw 15.9 Pitch of Screw 15.6 No. of Blades 4 State whether moveable No Total surface 76 sq ft
No. of Feed pumps Two Diameter of ditto 3 1/2 Stroke 26 Can one be overhauled while the other is at work Yes
No. of Bilge pumps Two Diameter of ditto 4 Stroke 26 Can one be overhauled while the other is at work Yes
No. of Donkey Engines Two Sizes of Pumps 8.5 - 10.9 No. and size of Suctions connected to both Bilge and Donkey pumps
In Engine Room None In Holds, &c. One 5" Tunnel 5"
No. of Bilge Injections Five sizes 5 Connected to condenser, or to circulating pump None Is a separate Donkey Suction fitted in Engine room & size 5 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 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 None
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 None
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 16/10/06 of Stern Tube 26/10/06 Screw shaft and Propeller 26/10/06
Is the Screw Shaft Tunnel watertight Yes Is it fitted with a watertight door Yes worked from Top Platform

BOILERS, &c.—(Letter for record S) Manufacturers of Steel D Borthwick Sons
Total Heating Surface of Boilers 4404 Is Forced Draft fitted No No. and Description of Boilers Two Single Ended
Working Pressure 180 lb Tested by hydraulic pressure to 360 lb Date of test 12/10/06 No. of Certificate 3081
Can each boiler be worked separately Yes Area of fire grate in each boiler 56 sq ft No. and Description of Safety Valves to
each boiler Two Spring Area of each valve 8.290 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 14" Mean dia. of boilers 15.6 Length 10.6 Material of shell plates Steel
Thickness 1 1/16 Range of tensile strength 27-35 Are the shell plates welded or flanged Both Descrip. of riveting: cir. seams Yes
long. seams None Diameter of rivet holes in long. seams 1 1/16 Pitch of rivets 9" Lap of plates or width of butt straps 19 1/2
Per centages of strength of longitudinal joint 85.18% Working pressure of shell by rules 183 lb Size of manhole in shell 16" x 12"
Size of compensating ring Flanged No. and Description of Furnaces in each boiler Three Annular Material Steel Outside diameter 45 7/8
Length of plain part top Thickness of plates bottom 19 1/2 Description of longitudinal joint Welded No. of strengthening rings None
Working pressure of furnace by the rules 181 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 8 5/8 Back 9 1/2 Top 9 1/2 If stays are fitted with nuts or riveted heads Nuts Working pressure by rules 181 lb
Material of stays Steel Diameter at smallest part 1 1/2 Area supported by each stay 9 1/2 Working pressure by rules 193 lb End plates in steam space:
Material Steel Thickness 1 1/16 Pitch of stays 22-19 1/2 How are stays secured With nuts Working pressure by rules 180 lb Material of stays Steel
Diameter at smallest part 1 1/2 Area supported by each stay 22-19 1/2 Working pressure by rules 185 lb Material of Front plates at bottom Steel
Thickness 1 Material of Lower back plate Steel Thickness 1 1/16 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 1/2 Working pressures by rules 189 lb Girders to Chamber tops: Material Steel Depth and
thickness of girder at centre 8 1/2 Length as per rule 30 Distance apart 8 Number and pitch of stays in each Two 9"
Working pressure by rules 189 lb Superheater or Steam chest; how connected to boiler None Can the superheater be shut off and the boiler worked
separately Yes Diameter None Length None Thickness of shell plates None Material None Description of longitudinal joint None Diam. of rivet
holes None Pitch of rivets None Working pressure of shell by rules None Diameter of flue None Material of flue plates None Thickness None
If stiffened with rings None Distance between rings None Working pressure by rules None End plates: Thickness None How stayed None
Working pressure of end plates None Area of safety valves to superheater None Are they fitted with easing gear None

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

No. *One* Description *Single Ended in furnace.*
 Made at *Darlington* By whom made *Walter Andrew Thayer & Co* When made *1906* Where fixed *Main deck*
 Working pressure *80 lb* tested by hydraulic pressure to *160 lb* Date of test *30/10/06* No. of Certificate *5795* Fire grate area *226 sq ft* Description of Safety
 Valves *Spring loaded* No. of Safety Valves *Two* Area of each *5.29* Pressure to which they are adjusted *80 lb* Date of adjustment *20/11/06*
 If fitted with easing gear *Yes* If steam from main boilers can enter the donkey boiler *No* 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 _____ 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 & pressure piston springs. Piston. Piston Rod*

FOR THE CENTRAL MARINE ENGINE WORKS.

(*M. Gray & Co. Ltd.*)

The foregoing is a correct description,

Wm. B. Bottomman

MANAGER.

Manufacturer.

Dates During progress of work in shops— *1906 May 24, 25, 26, 29, 30, 31, Jun. 7, 12, 18, 19, 20, 26, 29, Jul. 2, 3, 4, 5, 9, 10, 13, 16, 17, 19, 20, 21, 23, 24, 25, 26, 27, 30, 31, Aug. 1, 2, 13, 14, 15, 16, 21*
 of Survey During erection on board vessel — *Sept. 5, 6, 7, 11, 12, 13, 14, 17, 18, 19, 20, 21, 24, 25, 26, 27, 28, Oct. 12, 13, 14, 15, 16, 17, 18, 19, 22, 23, 25, 26, 29, 30, 31, Nov. 8, 20, 21*
 while building Total No. of visits *82* Is the approved plan of main boiler forwarded herewith *Yes*

Dates of Examination of principal parts—Cylinders *17/9/06* Slides *17/9/06* Covers *17/9/06* Pistons *17/9/06* Rods *9/10/06*
 Connecting rods *14/10/06* Crank shaft *3/10/06* Thrust shaft *3/10/06* Tunnel shafts *26/10/06* Screw shaft *4/10/06* Propeller *12/10/06*
 Stern tube *16/10/06* Steam pipes tested *17, 26/10/06* Engine and boiler seatings *22/10/06* Engines holding down bolts *26/10/06*
 Completion of pumping arrangements *30/10/06* Boilers fixed *30/10/06* Engines tried under steam *30/10/06*
 Main boiler safety valves adjusted *30/10/06* Thickness of adjusting washers *Steel SS 7/16" diam S P 49 psi. Port 3/16" RS 49 psi*
 Material of Crank shaft *Steel* Identification Mark on Do. *4424* Material of Thrust shaft *Steel* Identification Mark on Do. *4424*
 Material of Tunnel shafts *Steel* Identification Marks on Do. *4424* Material of Screw shafts *Steel* Identification Marks on Do. *4424*
 Material of Steam Pipes *Copper* Test pressure *450 lb*

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

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 of L.M.C. 11.06 in the Register Book.

It is submitted that, this vessel is eligible for THE RECORD of L.M.C. 11.06.

Wm. B. Bottomman
23.11.06

The amount of Entry Fee. . . £ *2* : *0* : *0* : When applied for, *22.11.06*
 Special . . . £ *34* : *7* : *0* : When received, *23.11.06*
 Donkey Boiler Fee . . . £ : : :
 Travelling Expenses (if any) £ : : : *23.11.06*

Committee's Minute *FRI. NOV 23 1906*

Assigned

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

L Lloyd's Register Foundation

MACHINERY CERTIFICATE
 WRITTEN.