

REPORT ON MACHINERY.

Date of writing Report 11th Oct 1912 When handed in at Local Office 11th Oct 1912 Port of West Newcastle Received at London Office WED. OCT. 23. 1912

No. in Survey held at West Newcastle Date, First Survey 14th Dec. Last Survey 11th Oct. 1912
Reg. Book. on the Steel Steamer Bonfield (Number of Visits 81)

Master Built at West Newcastle By whom built W Gray & Co Ltd Tons ^{Gross} _{Net} When built 1912

Engines made at West Newcastle By whom made Central Marine & Works when made 1912

Boilers made at West Newcastle By whom made Central Marine & Works 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" _{as fitted} 13 1/4" Material of Steel screw shaft

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 53"

Dia. of Tunnel shaft ^{as per rule} 11 1/4" _{as fitted} 11 3/4" Dia. of Crank shaft journals ^{as per rule} 11 9/16" _{as fitted} 12 1/4" Dia. of Crank pin 12 1/2" Size of Crank webs 17-7 1/4" Dia. of thrust shaft under collars 12 1/4" Dia. of screw 15.9" Pitch of Screw 15:0 No. of Blades 4 State whether moveable No Total surface 80 sq ft

No. of Feed pumps Two Diameter of ditto 3" Stroke 30" Can one be overhauled while the other is at work Yes

No. of Bilge pumps Two Diameter of ditto 3 1/2" Stroke 30" Can one be overhauled while the other is at work Yes

No. of Donkey Engines Two Sizes of Pumps 8:0 & 4:6 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 Jump 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 top of stokehold

BOILERS, &c.—(Letter for record S) Manufacturers of Steel J. Thompson & Son ✓

Total Heating Surface of Boilers 4082 Is Forced Draft fitted No No. and Description of Boilers Two single ended

Working Pressure 180 lbs Tested by hydraulic pressure to 360 lbs Date of test 19/8/12 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 lbs Are they fitted with easing gear Yes

Smallest distance between boilers or uptakes and bunkers or woodwork 21" Mean dia. of boilers 15.0" Length 11.0" Material of shell plates Steel

Thickness 1 1/2" Range of tensile strength 27-30 Are the shell plates welded or flanged both Descrip. of riveting: cir. seams 3/16" with long. seams all with 3/16" Diameter of rivet holes in long. seams 15/16" Pitch of rivets 9/16" Lap of plates or width of butt straps 19 1/4"

Per centages of strength of longitudinal joint ^{rivets} PP 7 _{plate} 85.5% Working pressure of shell by rules 181 lbs Size of manhole in End 16" 12"

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

Length of plain part ^{top} _{bottom} Thickness of plates ^{top} 9/16" _{bottom} Description of longitudinal joint welded No. of strengthening rings Seven

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

Pitch of stays to ditto: Sides 9:8 1/2" Back 8 1/4:8 1/2" Top 8 1/2:7 1/4" If stays are fitted with nuts or riveted heads both Working pressure by rules 181 lbs

Material of stays Steel Diameter at smallest part 1 1/2" Area supported by each stay 8 1/4:8 1/2" Working pressure by rules 192 lbs End plates in steam space: Material Steel Thickness 1 7/16" Pitch of stays 22:19" How are stays secured all nuts Working pressure by rules 152 lbs Material of stays Steel

Diameter at smallest parts 3.16" Area supported by each stay 22:19" Working pressure by rules 195 lbs Material of Front plates at bottom Steel

Thickness 1" Material of Lower back plate Steel Thickness 1 9/16" Greatest pitch of stays 15 1/2" Working pressure of plate by rules 180 lbs

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"

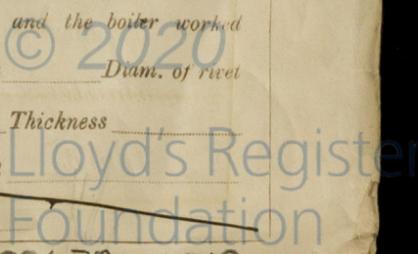
Pitch across wide water spaces 14 1/4" Working pressures by rules 189 lbs Girders to Chamber tops: Material Steel Depth and thickness of girder at centre 9:1 1/4" Length as per rule 32 1/8" Distance apart 7 1/2" Number and pitch of stays in each three 8 1/2"

Working pressure by rules 180 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



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 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	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. Washers.*

FOR THE CENTRAL MARINE ENGINE WORKS,
(55, Quay St. Sd.)

The foregoing is a correct description,

James E. Ebb

Manufacturer. 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	20/9/12	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		S 1/2 P 1/16 S 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 lbs								

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

Evaporator coils tested to 400 lbs and body to 50 lbs. ✓

The Machinery and Fitters 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	When applied for.	
Special	£ 33 : 7	When received,	22.10.12
Donkey Boiler Fee	£ :		
Travelling Expenses (if any)	£ :		24.10.12

J.W.D.
26/10/12
James James, Wharfedale
Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

Committee's Minute
Assigned
FRI. OCT. 25. 1912
+ L.M.C. 10.12



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