

# REPORT ON MACHINERY.

MON. 10 AUG 1903

Port of MIDDLESBROUGH

Received at London Office

No. in Survey held at Stockton  
Reg. Book.

Date, first Survey 4<sup>th</sup> February Last Survey 16<sup>th</sup> July 1903  
(Number of Visits 38)

on the Twin screw T.C.C. Hopper No. 2

Gross 405  
Tons Net 392

Master D Jones Built at Stockton By whom built Hopner & Son

When built 1903

Engines made at Stockton By whom made Blain & Co Ltd

when made 1903

Boilers made at Do By whom made Do

when made 1903

Registered Horse Power 90

Owners Freeport & Co Ltd

Port belonging to Middlesbrough

Nom. Horse Power as per Section 28 90

Is Refrigerating Machinery fitted No

Is Electric Light fitted No

ENGINES, &c.—Description of Engines Twin screw, triple expansion No. of Cylinders 6 No. of Cranks 6  
Dia. of Cylinders 10-16 1/2 - 27 Length of Stroke 22 Revs. per minute ✓ Dia. of Screw shaft as per rule 6.29 Lgth. of stern bush 2.3  
Dia. of Tunnel shaft as per rule 5.24 Dia. of Crank shaft journals as per rule 5.5 Dia. of Crank pin 6 Size of Crank webs 8 1/2 x 4 Dia. of thrust shaft under collars 6 Dia. of screw 7-6 Pitch of screw 9-3 No. of blades 4 State whether moveable No Total surface 22 sq feet  
No. of Feed pumps 1 each Diameter of ditto 3 Stroke 16 Can one be overhauled while the other is at work ✓  
No. of Bilge pumps 1 each Diameter of ditto 3 1/4 Stroke 16 Can one be overhauled while the other is at work ✓  
No. of Donkey Engines Two Sizes of Pumps 5 1/2 x 5 feet No. and size of Suctions connected to both Bilge and Donkey pumps 5 1/2 x 6 bilge  
In Engine Room One of 2 1/4 In Holds, &c. Free compartment one of 2 1/2  
Main compartments one of 2 1/2 each side  
No. of bilge injections One sizes 3 1/2 Connected to condenser, or to circulating pump C.P. Is a separate donkey suction fitted in Engine room & size Yes 2 1/4  
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 ✓  
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 Suction pipes from Free & Main compartments How are they protected Wood casing  
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  
When were stern tube, propeller, screw shaft, and all connections examined in dry dock New Vessel Is the screw shaft tunnel watertight None  
Is it fitted with a watertight door ✓ worked from ✓

BOILERS, &c.—(Letter for record S.) Total Heating Surface of Boilers 1640 sq ft Is forced draft fitted No  
No. and Description of Boilers One cylindrical tubular Working Pressure 170 lb Tested by hydraulic pressure to 340 lb  
Date of test 24-4-03 Can each boiler be worked separately ✓ Area of fire grate in each boiler 46.5 sq ft No. and Description of safety valves to each boiler Two, spring Area of each valve 7.06 Pressure to which they are adjusted 175 Are they fitted with easing gear Yes  
Smallest distance between boilers or uptakes and bunkers or woodwork No side bunker Mean dia. of boilers 13-6 Length 10-1 Material of shell plates Steel  
Thickness 1 5/32 Range of tensile strength 27/32 Are they welded or flanged No Descrip. of riveting: cir. seams Lap joint riv long. seams Double butt joint  
Diameter of rivet holes in long. seams 1 5/16 Pitch of rivets 7 3/8 one row 3 1/4 two rows Lap of plates or width of butt straps 1-5  
Per centages of strength of longitudinal joint rivets 96.5 Working pressure of shell by rules 182 lb Size of manhole in shell 17 x 13  
Size of compensating ring 37 1/2 x 30 x 1 5/32 No. and Description of Furnaces in each boiler Two Barrow Material Steel Outside diameter 3-1 1/2  
Length of plain part 6-7 Thickness of plates 1 1/2 Description of longitudinal joint Welded No. of strengthening rings ✓  
Working pressure of furnace by the rules 201 lb Combustion chamber plates: Material Steel Thickness: Sides 1/4 Back 1/4 Top 1/4 Bottom 7/8  
Pitch of stays to ditto: Sides 9 x 9 Back 9 x 9 5/8 Top 9 3/4 x 8 If stays are fitted with nuts or riveted heads Nut Working pressure by rules 193 lb  
Material of stays Steel Diameter at smallest part 1 9/16 Area supported by each stay 86.6 Working pressure by rules 227 lb End plates in steam space:  
Material Steel Thickness 1 9/32 Pitch of stays 13 x 19 How are stays secured Nut & W Working pressure by rules 227 lb Material of stays Steel  
Diameter at smallest part 2 7/8 Area supported by each stay 342 Working pressure by rules 190 lb Material of Front plates at bottom Steel  
Thickness 1 Material of Lower back plate Steel Thickness 1 1/2 Greatest pitch of stays 13 3/4 x 9 5/8 Working pressure of plate by rules 276 lb  
Diameter of tubes 3 1/4 Pitch of tubes 4 1/2 x 4 5/8 Material of tube plates Steel Thickness: Front 1 Back 1 7/16 Mean pitch of stays 9 5/8  
Pitch across wide water spaces 13 3/4 Working pressures by rules 207 lb Girders to Chamber tops: Material Steel Depth and thickness of girder at centre 7 1/2 x 1 5/8 Length as per rule 25 1/2 Distance apart 9 3/4 Number and pitch of Stays in each two 8  
Working pressure by rules 212 lb 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 —



DONKEY BOILER—		No.	Description		When made	Where fixed
Made at	By whom made					
Working pressure	tested by hydraulic pressure to	No. of Certificate	Fire grate area	Description of safety valves		
No. of safety valves	Area of each	Pressure to which they are adjusted	If fitted with easing gear	If steam from main boilers can enter the donkey boiler		
strength	Descrip. of riveting long. seams	Dia. of donkey boiler	Length	Material of shell plates	Thickness	Range of tensile
Lap of plating	Per centage of strength of joint	Rivets Plates	Thickness of shell crown plates	Radius of do.	No. of Stays to do.	Pitch of rivets
Dia. of stays.	Diameter of furnace Top	Bottom	Length of furnace	Thickness of furnace plates	Description of joint	
Thickness of furnace crown plates	Stayed by		Working pressure of shell by rules			
Working pressure of furnace by rules	Diameter of uptake	Thickness of uptake plates	Thickness of water tubes			

SPARE GEAR. State the articles supplied:— 2 Connecting rods top and bottom bolts & nuts  
2 Connecting rods bottom end bolts & nuts. 2 main bearing bolts  
1 set of coupling bolts, one set air, circulating feed & bilge pump  
valves, 1 set piston rings, 1 slide rod, 1 eccentric strap, 1 tail end shaft  
2 propellers.  
FOR BLAIR & CO LIMITED  
The foregoing is a correct description,  
Walter Bourne Manufacturer.

SECRETARY 1903: Feb 7. 10. 24. 26. 27. Mar 7. 13. 16. 19. 20. 24. 27. 30. April 4. 6. 9. 24. 27. 29  
Dates of Survey { During progress of work in shops - }  
while building { During erection on board vessel - }  
Total No. of visits 38  
Is the approved plan of main boiler forwarded herewith Blair  
" " " donkey " " " No plan

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

Material of screw shaft Description 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  
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 No

The engines are fitted aft.  
The engines and boiler have been built under special survey. The materials and workmanship are good and efficient. After fitting and securing on board the machinery has been tested under steam and found satisfactory & in my opinion is now eligible for the notification + P.M.C. 7.03. in the Register Book.

It is submitted that  
this vessel is eligible for  
THE RECORD - 1-LMC 7:03

10.8.03

The amount of Entry Fee... £ 1 : 0 : 0  
Special ... £ 12 10 : 0  
Donkey Boiler Fee ... £ : :  
Travelling Expenses (if any) £ : :  
When applied for, 6.8.1903  
When received, 6.8.1903

Geo. A. Milner & R. D. Shilston  
Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

Committee's Minute

Assigned

TUES. 11 AUG 1903

+ LMC 7.03

MACHINERY CERTIFICATE  
WRITTEN.



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Foundation