

REPORT ON MACHINERY.

Indb. No. 1526
H. H. 9728

Port of Middlesbrough Nest. Hartlepool Received at London Office MON 8 JUL 1895
No. in Survey held at Stockton on Tees Date, first Survey Feb. 9th Last Survey June 12th 18/84
Reg. Book. "April 26th" (Number of Visits 24)
on the Screw Steamer Fernfield Tons { Gross 3142
Net 2025
Master Percy Watson Built at Hartlepool By whom built Lunness, Withy & Co. Ltd. When built 1895
Engines made at Stockton on Tees By whom made Blair & Co. Ltd. when made 1895
Boilers made at Stockton on Tees By whom made Blair & Co. Ltd. when made 1895
Registered Horse Power 300 Owners The Fernfield Steam Ship Co. Ltd. Port belonging to London
Nom. Horse Power as per Section 28 301 J. Woods, Manager.
Manufacturers H. 250

ENGINES, &c.— Description of Engines Triple Expansion No. of Cylinders Three
Diameter of Cylinders 24"-40"-66" Length of Stroke 45" Revolutions per minute 58 Diameter of Screw shaft as per rule 11.6"
Diameter of Tunnel shaft as fitted 11.3" Diameter of Crank shaft journals 13.4" Diameter of Crank pin 13.4" Size of Crank webs 24" x 9.4" built
Diameter of screw 1 1/4" 0" Pitch of screw 16" 0" No. of blades 4 State whether moveable No. Total surface 4459 sq. ft.
No. of Feed pumps 2 Diameter of ditto 3" Stroke 33" Can one be overhauled while the other is at work Yes
No. of Bilge pumps 2 Diameter of ditto 4 1/2" Stroke 33" Can one be overhauled while the other is at work Yes
No. of Donkey Engines Two Sizes of Pumps (4" x 8") (9" x 10") No. and size of Suctions connected to both Bilge and Donkey pumps
In Engine Room Three: 1-3 1/2" dia. 2-3" dia. In Holds, &c. Forehold: 1-3 1/2" dia. Main Hold: 2-3" dia.
After Hold: 1-3 1/2" dia. Aftermost Hold: 1-3 1/2" dia. Tunnel Well: 1-2 1/2" dia.
No. of bilge injections 1 sizes 3" Connected to condenser, or to circulating pump C.P. Is a separate donkey suction fitted in Engine room & size Yes: 4" dia.
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 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
When were stern tube, propeller, screw shaft, and all connections examined in dry dock Never Is the screw shaft tunnel watertight Yes
Is it fitted with a watertight door Yes worked from top platform of Engine Room.

BOILERS, &c.— (Letter for record \$) Total Heating Surface of Boilers 4650 sq. ft.
No. and Description of Boilers Two: cylindrical Working Pressure 160 lbs Tested by hydraulic pressure to 320 lbs.
Date of test 6/5/95 Can each boiler be worked separately Yes Area of fire grate in each boiler 62 sq. ft. No. and Description of safety valves to
each boiler Two: Direct Spring Area of each valve 8.29 sq. in. Pressure to which they are adjusted 165 lbs. Are they fitted
with easing gear Yes Smallest distance between boilers or uptakes and bunkers or woodwork 16" Mean diameter of boilers 15' 6"
Length 10' 8" Material of shell plates Steel Thickness 1 1/2" Description of riveting: circum. seams Lap Double long seams Butt Straps
Diameter of rivet holes in long. seams 1 1/8" Pitch of rivets 8 3/4" 4 3/8" Lap of plates or width of butt straps 1' 4" x 1' 8" thick
Per centages of strength of longitudinal joint 87.9 Working pressure of shell by rules 168 lbs Size of manhole in shell 14" x 13"
Size of compensating ring 31" x 27" x 1 1/2" No. and Description of Furnaces in each boiler 3: Corrugated Material Steel Outside diameter 3' 10"
Length of plain part top 6' 9" bottom 6' 9" Thickness of plates top 1 1/2" bottom 1 1/2" Description of longitudinal joint Welded No. of strengthening rings ✓
Working pressure of furnace by the rules 144 lbs Combustion chamber plates: Material Steel Thickness: Sides 7/8" Back 7/8" Top 7/8" Bottom 1"
Pitch of stays to ditto: Sides 7/8" x 7/8" Back 7/8" x 7/8" Top 7/8" x 7/8" If stays are fitted with nuts or riveted heads None Working pressure by rules 194 lbs.
Material of stays Steel Diameter at smallest part 1 1/8" Area supported by each stay 55 sq. in. Working pressure by rules 144 lbs. End plates in steam space:
Material Steel Thickness 1" Pitch of stays 16 1/4" x 15" How are stays secured Stole nuts & washers Working pressure by rules 149 lbs. Material of stays Steel
Diameter at smallest part 2 3/8" Area supported by each stay 243 sq. in. Working pressure by rules 163 lbs. Material of Front plates at bottom Steel
Thickness 1" Material of Lower back plate Steel Thickness 1" Greatest pitch of stays 12" Working pressure of plate by rules 144 lbs.
Diameter of tubes 3 1/2" Pitch of tubes 4 3/4" x 4 3/8" Material of tube plates Steel Thickness: Front 1" Back 1 1/8" Mean pitch of stays 9' 8"
Pitch across wide water spaces 14 1/4" Working pressures by rules 189 lbs. & 252 lbs. Girders to Chamber tops: Material Steel Depth and
thickness of girder at centre 7 1/4" x 1 1/8" Length as per rule 28 1/2" Distance apart 3 1/2" Number and pitch of Stays in each 3: 7/4"
Working pressure by rules 186 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 ✓

HPL375-0087

DONKEY BOILER—

Description *Blakes' patent*
 Made at *Shekton* By whom made *Copley Turner & Co. Ltd*
 Working pressure *80 lbs* tested by hydraulic pressure to *160 lbs* No. of Certificate *1055* Fire grate area *25.9 sq ft* Description of safety valves *Spring; direct*
 No. of safety valves *2* Area of each *5.94 sq ft* Pressure to which they are adjusted *81 lbs* If fitted with easing gear *yes* If steam from main boilers enter the donkey boiler *no* Diameter of donkey boiler *4' 0"* Length *14' 6"* Material of shell plates *Steel* Thickness *3/16"*
 Description of riveting long. seams *Lap Treble* Diameter of rivet holes *13/16"* Whether punched or drilled *Drilled* Pitch of rivets *3"*
 Lap of plating *5 1/2"* Per centage of strength of joint *87* Thickness of shell crown plates *13/32"* Radius of do. *3' 6"* No. of Stays to do. *4*
 Dia. of stays. *1"* Diameter of furnace Top *3' 0"* Bottom *6' 0"* Length of furnace *5' 3"* Thickness of furnace plates *9/16"* Description of joint *Lap Single* Thickness of *fire crown* plates *1/2"* *9' 6"* Stayed by *1 3/8" square pitch 9 1/2" x 9 1/2"* Working pressure of shell by rules *83*
 Working pressure of furnace by rules *49 lbs* Diameter of *tubes* *2 1/2"* Thickness of *plates* *7/8" B 5/8"* Thickness of water tubes *1 1/8"*

SPARE GEAR. State the articles supplied:— *Propeller, 2 main bearing bolts + nuts, 2 top end bolts + nuts, 2 bottom end bolts + nuts, 1 set of shaft coupling bolts + nuts, 2 feed valves, 2 bilge valves, check valves for main + donkey feed, pistons, 20 main boiler tubes, 50 condenser tubes, nuts, bolts + iron assorted*
 The foregoing is a correct description,
 FOR BLAIR & CO., LIMITED.
M. Dorrie Manufacturer of marine engines + boilers.
 SECRETARY.

General Remarks (State quality of workmanship, opinions as to class, &c.)
The Engines and Boilers of this vessel have been built under Special Survey and the workmanship is good. When completed they were examined under steam and worked satisfactorily.
The Machinery is now in good and efficient condition and will be eligible in my opinion to have the notation of L.M.C. 6, 95 marked in the Register Book when the following work has been completed: The Funnel to be made watertight and Bulkhead door fitted; the Donkey Boiler to be secured its mountings fitted and examined under steam; Spare Gear to examine; and the Suctions to the Holds and Funnel to complete as per approved plan.
The above mentioned fittings have been satisfactorily completed.

It is submitted that
 this vessel is eligible for
 THE RECORD + L.M.C. 6. 95.
M.S.
8.7.95.

[Large handwritten signature]

Certificate (if required) to be sent to

The amount of Entry Fee..	£ 3 :	When applied for,
Special	£ 15 :	5.7.95
Donkey Boiler Fee	£ :	When received,
Travelling Expenses (if any) £	:	5.7.95

Committee's Minute
 Assigned
 TUES 9 JUL 1895
 + L.M.C. 6. 95
Wm. Austin Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.