

## REPORT ON MACHINERY.

No. 6625

WED. 1 FEB 1911

Date of writing Report 31.1.11 When handed in at Local Office 11th Aug 10 Port of MIDDLESBROUGH-ON-TEES.  
 No. in Survey held at Stockton-on-Tees Date, First Survey 22nd May, 1910 Last Survey 24th Jan 1911 (bud.)  
 Reg. Book. 1 on the steel screw steamer "Terrier" (S.S. No. 478) (Number of Visits 37 (bud.))  
 Master W. Wilhelmson Built at Sunderland By whom built J. L. Thompson & Sons Ltd When built 1911  
 Engines made at Stockton By whom made Blair & Co Ltd (No. 1679) when made 1911  
 Boilers made at Stockton By whom made Thos Blair & Co Ltd when made 1911  
 Registered Horse Power 440 Owners W. Wilhelmson Port belonging to Fonsberg  
 Nom. Horse Power as per Section 28 440 Is Refrigerating Machinery fitted for cargo purposes no Is Electric Light fitted yes

**ENGINES, &c.—Description of Engines** Triple Expansion No. of Cylinders 3 No. of Cranks 3  
 Dia. of Cylinders 27-44½-73 Length of Stroke 48 Revs. per minute 62 Dia. of Screw shaft 15.89 Material of iron  
 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  
 on the propeller boss yes If the liner is in more than one length are the joints burned one length 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 5'-6"  
 Dia. of Tunnel shaft 13.36 as per rule 14 Dia. of Crank shaft journals 14.02 as per rule 14½ Dia. of Crank pin 15 Size of Crank webs 28½ x 9½ Dia. of thrust shaft under  
 collars 15 Dia. of screw 18'-0" Pitch of Screw 18'-0" No. of Blades 4 State whether moveable no Total surface 100 sq ft  
 No. of Feed pumps 2 Diameter of ditto 3½ Stroke 34 Can one be overhauled while the other is at work yes  
 No. of Bilge pumps 2 Diameter of ditto 5" Stroke 34 Can one be overhauled while the other is at work yes  
 No. of Donkey Engines 2 Sizes of Pumps Ballant 12x12 & 4x8 No. and size of Suctions connected to both Bilge and Donkey pumps  
 in Engine Room 3 @ 3½" & 1-3½" Blr Room by tank In Holds, &c. 2 @ 3½" in each hold; Tunnel  
will one @ 2½"  
 No. of Bilge Injections 1 sizes 7" Connected to condenser, or to circulating pump yes Is a separate Donkey Suction fitted in Engine room of size yes-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 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  
 That pipes are carried through the bunkers Forward holds How are they protected wood ceiling  
 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 21-12-10 of Stern Tube 21-12-10 Screw shaft and Propeller 17-1-11  
 Is the Screw Shaft Tunnel watertight see hull Report Is it fitted with a watertight door yes worked from top platform

**BOILERS, &c.—(Letter for record (S))** Manufacturers of Steel J. Spencer & Sons  
 Total Heating Surface of Boilers 7329 Is Forced Draft fitted no No. and Description of Boilers 3 Single Ended  
 Working Pressure 180 Tested by hydraulic pressure to 360 Date of test 8.9.10 No. of Certificate 4494  
 Can each boiler be worked separately yes Area of fire grate in each boiler 64 sq ft No. and Description of Safety Valves to  
 each boiler 2 direct spring Area of each valve 8.29 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 2 ft Mean dia. of boilers 15'-6" Length 11'-6" Material of shell plates steel  
 Thickness 1½" Range of tensile strength 28-32 Are the shell plates welded or flanged no Descrip. of riveting: cir. seams 2 Riv. lap  
 g. seams 2 Riv. 3 Riv Diameter of rivet holes in long. seams 1½" Pitch of rivets 9½" Lap of plates or width of butt straps 19½ x 1½  
5 Rivets per pitch rivets 27.5 Working pressure of shell by rules 184 Size of manhole in shell 16" x 12"  
 Percentages of strength of longitudinal joint plate 85-87 No. and Description of Furnaces in each boiler 3 (Union) Material steel Outside diameter 46½"  
 of compensating ring 7½ x 1½" Thickness of plates 7/16 Description of longitudinal joint welded No. of strengthening rings —  
 Length of plain part top bottom Working pressure of furnace by the rules 190 Combustion chamber plates: Material steel Thickness: Sides 3/32 Back 1/16 Top 3/32 Bottom 3/4"  
 Length of stays to ditto: Sides 8½ x 11 Back 9½ x 9½ Top 9½ x 10 If stays are fitted with nuts or riveted heads nuts Working pressure by rules 180 lb  
 Material of stays steel Diameter at smallest part 1.59 Area supported by each stay 97.5 Working pressure by rules 184 End plates in steam space:  
 Material steel Thickness 1½" Pitch of stays 21 x 20 How are stays secured nuts & washers Working pressure by rules 185 Material of stays steel  
 Diameter at smallest part 3.04 Area supported by each stay 394.62 Working pressure by rules 192 Material of Front plates at bottom steel  
 Thickness 1½" Material of Lower back plate steel Thickness 1" Greatest pitch of stays 14½ x 9½ Working pressure of plate by rules 241  
 Diameter of tubes 3½" Pitch of tubes 4½ x 4½ Material of tube plates steel Thickness: Front 1½" Back 1/16 Mean pitch of stays 11½"  
 Thickness across wide water spaces 14½" Working pressures by rules 181 Girders to Chamber tops: Material steel Depth and  
 thickness of girder at centre 8 x 1½" Length as per rule 32 Distance apart 9½" Number and pitch of stays in each 2 @ 10"  
 Working pressure by rules 186 Superheater or Steam chest; how connected to boiler none Can the superheater be shut off and the boiler worked  
 separately yes Diameter — Length — Thickness of shell plates — Material — Description of longitudinal joint — Diam. of rivet  
— Pitch of rivets — Working pressure of shell by rules — Diameter of flue — Material of flue plates — Thickness —  
 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 —



VERTICAL DONKEY BOILER—

Manufacturers of Steel

None

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 easing 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:—

Crosshead pins, 2 safety valve springs, 3 air pp valves  
 1 Yail shaft, 1 Propeller, 1 set HP & LP piston pins, 1 set LP piston springs  
 2 low rod & pin bolts & nuts, 2 low rod hot end bolts & nuts, 2 main bearing bolts & nuts  
 1 set Coupling bolts, 1 set feed & bilge pump valves, Assorted bolts, nuts & wire.

The foregoing is a correct description,  
 FOR BLAIR & CO., LIMITED.

Geo. Kettle

Manufacturer.

SECRETARY.  
 Dates of Survey while building  
 During progress of work in shops -- 1910. May 22 25 28 30 June 1 6 7 17 23 29 July 2 5 7 12 14 18 20 22 23 26 28 Aug 2 4 8 11 12 25 28 31  
 During erection on board vessel -- 1911. Jan 16 17 18 20 22 24 Dec 1 Feb 1 7 11  
 Total No. of visits 37 (incl.) + 4  
 Is the approved plan of main boiler forwarded herewith yes

Dates of Examination of principal parts—Cylinders 5.7.10 Slides 18.7.10 Covers 2.8.10 Pistons 20.7.10 Rods 20.7.10  
 Connecting rods 4.8.10 Crank shaft 24.8.10 Thrust shaft 12.7.10 Tunnel shafts 26.7.10 Screw shaft 8.9.10 Propeller 19.9.10  
 Stern tube 9.9.10 Steam pipes tested 16.1.11 Engine and boiler seatings 21.10.10 Engines holding down bolts 20.1.11  
 Completion of pumping arrangements 24.1.11 Boilers fixed 24.1.11 Engines tried under steam 24.1.11  
 Main boiler safety valves adjusted 24.1.11 Thickness of adjusting washers Port 13/16 PV = 7/16 SV = 7/16  
 Material of Crank shaft Steel Identification Mark on Do. 6589 Material of Thrust shaft Steel Identification Mark on Do. 7321-N  
 Material of Tunnel shafts Steel Identification Marks on Do. 7321-N Material of Screw shafts iron Identification Marks on Do. 6589  
 Material of Steam Pipes solid drawn copper 4 1/2 line x 5 L.S.G. Test pressure 400 lbs.

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

To complete the survey the spare gear requires to be examined. It is proposed to have this done at Sunderland. The Sunderland Surveyors have been advised.  
 The machinery of this vessel has been built under Special Survey. The materials and workmanship are sound and good. The boilers and main steam pipes were tested by hydraulic pressure, and the engines and boilers were examined under steam, at a wharf, and all found satisfactory. In my opinion the vessel will be eligible to have the notation of \* L.M.C. with a date 2.11. when the survey has been completed.

Spare Gear examined which completes this survey.

It is submitted that  
 this vessel is eligible for  
 THE RECORD. + L.M.C. 2.11.

N.H.P. = 440  
 The amount of Entry Fee .. £ 3 - 0 - 0  
 Special .. £ 42 - 0 - 0  
 Donkey Boiler Fee .. £ - - -  
 Travelling Expenses (if any) £ - - -

Committee's Minute

Assigned

FRI. 17 FEB 1911

MACHINERY CERTIFICATE  
 WRITTEN

Wm Morrison William Butler  
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.



Lloyd's Register  
 Foundation

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