

REPORT ON MACHINERY

Std. Rpt. 25941

No. 8213

TUE. DEC. 2-1913

Received at London Office
MIDDLESBRO'

Date of writing Report 1. 12. 1913 When handed in at Local Office 1. 12. 1913 Port of **MIDDLESBRO'**
No. in Survey held at **Stockton-on-Tees** Date, First Survey **27th June** Last Survey **26th Nov** 1913
Reg. Book. **46** Suff. on the **Steel Screw Steamer Bertrand** (Number of Visits **(S.S.N. 281)**)
Master **Jenkins** Built at **Sunderland** By whom built **R. Thompson & Sons** Tons { Gross **3613**
Engines made at **Stockton** By whom made **Jesson Blair & Co Ltd (N. 1779)** when made **1913**
Boilers made at **Stockton** By whom made **Jesson Blair & Co Lim.** when made **1913**
Registered Horse Power **337** Owners **Turnbull Bros** Port belonging to **Leardiff**
Nom. Horse Power as per Section 28 **337** Is Refrigerating Machinery fitted for cargo purposes **no** Is Electric Light fitted **no**

ENGINES, &c.—Description of Engines **Tri-compound** No. of Cylinders **3** No. of Cranks **3**
Dia. of Cylinders **25-41-67** Length of Stroke **45** Revs. per minute **58** Dia. of Screw shaft as per rule **14.63** Material of **Ing 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 **✓** 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 **yes, lapped 12" at liner ends** Length of stern bush **5'-3"**
Dia. of Tunnel shaft as per rule **12.4** Dia. of Crank shaft journals as per rule **13.02** Dia. of Crank pin **14** Size of Crank webs **27x9** Dia. of thrust shaft under
collars **14** Dia. of screw **17'-0"** Pitch of Screw **17'-6"** No. of Blades **4** State whether moveable **no** Total surface **92 sq**
No. of Feed pumps **2** Diameter of ditto **3 1/4** Stroke **33** Can one be overhauled while the other is at work **yes**
No. of Bilge pumps **2** Diameter of ditto **4 3/4** Stroke **33** Can one be overhauled while the other is at work **yes**
No. of Donkey Engines **2** Sizes of Pumps **Ballast 9x10; feed 4x8** No. and size of Suctions connected to both Bilge and Donkey pumps
In Engine Room **2 @ 3 1/2" in wings & one @ 3 1/2" in dry tank** In Holds, &c. **2 @ 3 1/2" in each hold; one at 3 1/2"**
tunnel well and one @ 3" to fore peak
No. of Bilge Injections **1** sizes **6 1/4** Connected to condenser, or to circulating pump **yes** Is a separate Donkey Suction fitted in Engine room & 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 **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 **Suctions to forward holds** 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**
Dates of examination of completion of fitting of Sea Connections **11-11-13** of Stern Tube **13-11-13** Screw shaft and Propeller **20-11-13**
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 **Jesson John Spencer & Sons Ltd**
Total Heating Surface of Boilers **5330** Is Forced Draft fitted **no** No. and Description of Boilers **2 single ended**
Working Pressure **180** Tested by hydraulic pressure to **360** Date of test **30.9.13** No. of Certificate **5765**
Can each boiler be worked separately **yes** Area of fire grate in each boiler **63 sq** 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** Are they fitted with easing gear **yes**
Smallest distance between boilers or uptakes and bunkers or woodwork **2'-6"** External Mean dia. of boilers **16'-3"** Length **11'-0"** Material of shell plates **steel**
Thickness **1 1/2** Range of tensile strength **28-32** Are the shell plates welded or flanged **no** Descrip. of riveting: cir. seams **2-R-lap**
long. seams **2B-3 Riv** Diameter of rivet holes in long. seams **1 1/2** Pitch of rivets **8 3/4** Lap of plates or width of butt straps **19 1/4 x 1 1/4**
5 Rivs per pitch rivets **87.5** Working pressure of shell by rules **182** Size of manhole in shell **16" x 12"**
Per centages of strength of longitudinal joint plate **85.03**
Size of compensating ring **7 1/2 x 1 1/2** No. and Description of Furnaces in each boiler **3 Morrison** Material **steel** Outside diameter **48.65**
Length of plain part top **✓** Thickness of plates crown **32** Description of longitudinal joint **Weld** No. of strengthening rings **✓**
bottom **64** Working pressure of furnace by the rules **188** Combustion chamber plates: Material **steel** Thickness: Sides **23/32** Back **21/32** Top **23/32** Bottom **27/32**
Pitch of stays to ditto: Sides **9x10 1/2** Back **9x9** Top **10 1/2 x 9 1/4** stays are fitted with nuts or riveted heads **nuts** Working pressure by rules **183**
Material of stays **steel** Diameter at smallest part **1.99** Area supported by each stay **94.5** Working pressure by rules **189** End plates in steam space:
Material **steel** Thickness **1 3/8** Pitch of stays **22 1/2** x **19** How are stays secured **nuts & washers** Working pressure by rules **193** Material of stays **steel**
Diameter at smallest part **8.48** Area supported by each stay **462** Working pressure by rules **191** Material of Front plates at bottom **steel**
Thickness **1"** Material of Lower back plate **steel** Thickness **1 1/2** Greatest pitch of stays **17" x 9"** Working pressure of plate by rules **230**
Diameter of tubes **3 1/2** Pitch of tubes **4 3/4 x 4 3/8** Material of tube plates **steel** Thickness: Front **1 1/2** Back **1 3/8** Mean pitch of stays **9 3/4**
Pitch across wide water spaces **14 1/2** Working pressures by rules **181** Girders to Chamber tops: Material **steel** Depth and
thickness of girder at centre **7 3/4 x 1 3/8** Length as per rule **30** Distance apart **10 1/2** Number and pitch of stays in each **2 @ 9 1/4**
Working pressure by rules **184** 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 **✓**

