

REPORT ON MACHINERY.

W. W. No. 9869
Mat. No. 16

Port of MIDDLESBROUGH-ON-TEES.

WED. JAN 29 1896

No. in Survey held at Stockton-on-Tees.
Reg. Book.

Date, first Survey 27th Sept

Last Survey 18th Dec 1895

(Number of Visits 40)

on the Screw Steamer "Grantor".

Tons { Gross 2936
Net 1874.9

Master G. S. R. Ballin Built at Hawespool By whom built Turners, 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 _____ Owners J. Holman & Sons Port belonging to London

Nom. Horse Power as per Section 28 246
Manufacturers HP. 200.

ENGINES, &c. — Description of Engines Triple expansion. No. of Cylinders Three
Diameter of Cylinders 23"-37"-61." Length of Stroke 42" Revolutions per minute 65. Diameter of Screw shaft as per rule 10.9"
Diameter of Tunnel shaft as fitted 11.2" Diameter of Crank shaft journals 12." Diameter of Crank pin 12.2" Size of Crank webs 19.2" x 8.2" built
Diameter of screw 16' 0". Pitch of screw 16' 0". No. of blades 4. State whether moveable No. Total surface 71 Sq. feet
No. of Feed pumps 2 Diameter of ditto 3" Stroke 30" Can one be overhauled while the other is at work Yes.
No. of Bilge pumps 2 Diameter of ditto 4.2" Stroke 30" Can one be overhauled while the other is at work Yes.
No. of Donkey Engines Two Sizes of Pumps (14" x 8") (9" x 10") No. and size of Suctions connected to both Bilge and Donkey pumps
In Engine Room Three: Centre 3.2" dia. Wings 3" dia. In Holds, &c. Fore Hold: One 3.2" dia. Main Hold: One 3.2" dia. After Hold: One 3.2" dia. Foremost Hold: One 3.2" dia. Tunnel Well: One 4" dia.
No. of bilge injections 1 sizes 4" Connected to condenser, or to circulating pump C.P. 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 Below.
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 See vessel. Is the screw shaft tunnel watertight Yes
Is it fitted with a watertight door Yes worked from Upper Platform

OILERS, &c. — (Letter for record S.R.) Total Heating Surface of Boilers 3760 Sq. ft.
No. and Description of Boilers Two: Cylindrical multi-Ended Single Ended Working Pressure 160 lbs Tested by hydraulic pressure to 320 lbs.
Date of test 24/10/95. Can each boiler be worked separately Yes. Area of fire grate in each boiler 5.2 Sq. ft. No. and Description of safety valves to each boiler Two: Direct Spring Area of each valve 7.06" 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 1' 6" Mean diameter of boilers 14' 6.2"
Length 10' 0" Material of shell plates Steel Thickness 1.32" Description of riveting: circum. seams Lap Double long. seams Double Butt Snap
Diameter of rivet holes in long. seams 1.4" Pitch of rivets 8.2" 4.2" Lap of plates or width of butt straps 1' 4" x 1" thick
Per centages of strength of longitudinal joint rivets 90.6 plate 84.8 Working pressure of shell by rules 170 lbs. Size of manhole in shell 17" x 13"
Size of compensating ring 31 x 27 x 1.32" No. and Description of Furnaces in each boiler 3: Ribbed Material Steel Outside diameter 41"
Length of plain part top 7.6.3" bottom 7.6.3" Thickness of plates crown 1" bottom 1" Description of longitudinal joint welded. No. of strengthening rings _____
Working pressure of furnace by the rules 169 lbs Combustion chamber plates: Material Steel Thickness: Sides 9/16" Back 9/16" Top 9/16" Bottom 15/16"
Pitch of stays to ditto: Sides 7/8" x 7/8" Back 7/8" x 6.2" Top 7/8" x 7/8" If stays are fitted with nuts or riveted heads Nuts Working pressure by rules 182 lbs.
Material of stays Steel Diameter at smallest part 1.76" Area supported by each stay 56" Working pressure by rules 173 lbs. End plates in steam space: Material Steel Thickness 1.56" Pitch of stays 15" x 15" How are stays secured By nuts & washers Working pressure by rules 185 lbs. Material of stays Steel Diameter at smallest part 2.38" Area supported by each stay 22.5" Working pressure by rules 174 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 _____
Diameter of tubes 3.2" Pitch of tubes 4.2" x 4.2" Material of tube plates Steel Thickness: Front 1" Back 1.36" Mean pitch of stays 9.8"
Pitch across wide water spaces 14" Working pressures by rules 195 lbs 285 lbs Girders to Chamber tops: Material Steel Depth and thickness of girder at centre 4" x 1.2" Length as per rule 27.2" Distance apart 4.2" Number and pitch of Stays in each 3: 4.2"
Working pressure by rules 174 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 _____
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 _____

DONKEY BOILER— Description *Horizontal multi-tube with 2 plain furnaces.*
 Made at *Stockton* By whom made *J. Hudson & Co. Ltd.* When made *25/10/95* Where fixed *In Stockton*
 Working pressure *80 lbs* tested by hydraulic pressure to *160 lbs* No. of Certificate *1149* Fire grate area *20 sq* Description of safety valves *Spring*
 No. of safety valves *2* Area of each *5.94* pressure to which they are adjusted *80 lbs* If fitted with easing gear *Yes* If steam from main boilers can enter the donkey boiler *No* Diameter of donkey boiler *8' 6"* Length *8' 6"* Material of shell plates *Steel* Thickness *15"*
 Description of riveting long. seams *Lap = quadruple* Diameter of rivet holes *1 3/16"* Whether punched or drilled *punched* Pitch of rivets *2 1/2"*
 Lap of plating *6 5/8"* Per centage of strength of joint Rivets *8 8/16* Thickness of shell *1 3/16"* *to end* *2 1/2"* Radius of do. *pitch* No. of Stays to do. *15 1/2" x 1 1/2"*
 Dia. of stays *2 1/4"* Diameter of furnace *Top 2' 6" Bottom* Length of furnace *5' 4 1/2"* Thickness of furnace plates *7/16"* Description of joint *Welded* Thickness of furnace *plates* *1 1/2"* *to bottom* Stayed by *1 3/8" x 8 1/2" pitch* Working pressure of shell by rules *80 lbs*
 Working pressure of furnace by rules *108 lbs* Diameter of *tubes* *uptake* *3"* Thickness of *tube* *uptake* *plates* *8" 7/16"* Thickness of *water* *tubes* *1 1/2" BWG*

SPARE GEAR. State the articles supplied:— *Propeller, 2 main Bearing Bolts, 2 Crosshead Bolts, 2 crank pin Bolts, 1 set coupling Bolts, 1 set of feed valve, 1 set of bilge valves, piston Spring, nuts, bolts & iron.*

For BLAIR & Co. LIMITED
 The foregoing is a correct description,
W. Borrie Manufacturer of main Engines & Boilers.
 SECRETARY.

General Remarks (State quality of workmanship, opinions as to class, &c.)
 During progress of work in shops— *1895 Sept 2. 6. 7. 11. 12. 14. 20. 25. 26. 29. Oct 2. 4. 7. 10. 15. 14. 24. 24. 29. 31. Nov 4. 7. 12. 14. 15. 16. 19. 21. 26. 28. Dec 2. 4. 5. 6. 7. 8. 9. 10. 11. 12. 13. 14. 15. 16. 17. 18. 19. 20. 21. 22. 23. 24. 25. 26. 27. 28. 29. 30. 31.*
 During erection on board vessel— *1895 Dec 10. 11. 11. 12. 14. 14. 18* } *W. Hpl. dates 1895. Dec 4. 9. 1896. Jan 2*
 Total No. of visits *Forty* } *Three*

The Engines and Boilers of this vessel have been built under special survey and the materials and workmanship are good. When fitted on board they were examined under full steam and worked satisfactorily.

The machinery is now in good and efficient condition and will be eligible in my opinion to have the notation **L.M.C. 1, 96.** marked in the Register when the following work has been done.— The pumping arrangements to be completed as per approved plan; The funnel to be made watertight and bulkhead doors fitted; The Donkey Boiler to be secured in place, mountings fitted and examined under steam; and the Spare gear to be examined.

The above mentioned fittings have been satisfactorily completed & the Spare part supplied.
Richard Hors

It is submitted that this vessel is eligible for THE RECORD.
L.M.C. 1. 96
L.L. Pms.

Certificate (if required) to be sent to *29.1.96. 29.1.96.*

The amount of Entry Fee. . . £ 2 : : : When applied for, 27.1.18 96
 Special £ 32 : 4 : : :
 Donkey Boiler Fee £ : : : : When received, 27.1.18 96
 Travelling Expenses (if any) £ : : : :

Wm. Austin
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping

Committee's Minute **FRI. JAN 31 1896**

Assigned *+ L.M.C. 1. 96*

The Surveyors are requested not to write on or below the space for Committee's Minute.

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