

REPORT ON MACHINERY.

Port of MIDDLESBROUGH-ON-TEES.

WED. JAN 29 1896

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

Date, first Survey 2nd Sept

Last Survey 18th Dec 1895

(Number of Visits 40)

on the Screw Steamer "Grantor".

Master G. L. R. Ballin Built at Harrogate 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"x8.2" 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 (4"x8") (9"x10") No. and size of Suctions connected to both Bilge and Donkey pumps
In Engine Room Three: Centre 3.2" dia. Kings 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 rule 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-tubed 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 52 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 1.3" Description of riveting: circum. seams Lap Double long. seams Double Butt Snaps
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 90.6 Working pressure of shell by rules 170 lbs Size of manhole in shell 17" x 13"
Size of compensating ring 31 x 27 x 1.3" No. and Description of Furnaces in each boiler 3: Ribbed Material Steel Outside diameter 41"
Length of plain part top 76.3" Thickness of plates crown 1" Description of longitudinal joint Welded No. of strengthening rings bottom 1"
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 1.5" Pitch of stays 15" x 15" How are stays secured By washers Working pressure by rules 185 lbs Material of stays Steel
Diameter at smallest part 2.3" 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 1.3" 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 7" x 1.2" Length as per rule 27.2" Distance apart 7.2" Number and pitch of Stays in each 3: 7.4"
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 _____

HPL376-0219

DONKEY BOILER— Description *Horizontal multi-tube with 2 plain furnaces.*
Made at *Stockton* By whom made *J. Ludron & 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 5/8* 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 *7/16"* Whether punched or drilled *Punched* Pitch of rivets *2 1/2"*
Lap of plating *6 5/8"* Per centage of strength of joint *88.6* Thickness of shell *15"* Radius of do. *21"* No. of Stays to do. *15 1/2"*
Dia. of stays *2"* Diameter of furnace *Top 2' 6" Bottom 2' 6"* Length of furnace *5' 4 1/2"* Thickness of furnace plates *7/16"* Description of joint *Welded* Thickness of furnace crown plates *1/2"* Stayed by *1 1/2" x 8 1/2" pitch* Working pressure of shell by rules *80 lbs*
Working pressure of furnace by rules *108 lbs* Diameter of tubes *2"* Thickness of tubes *11 B.W.G.*

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 tilge valves, piston Spring, nuts, bolts & iron.*

The foregoing is a correct description,

W. Borrie

Manufacturers of main Engines & Boilers.

SECRETARY.

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

Dates of Survey while building
During progress of work in shops— *1895 Sept 2. 6. 7. 11. 12. 14. 20. 25. 26. 27. Oct 2. 4. 10. 15. 17. 24. 29. 31. Nov 1. 7. 12. 14. 15. 16. 19. 21. 26. 28. Dec 1. 2. 3. 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. 12. 13. 14. 15. 16. 17. 18.*
Total No. of visits *Forty* } *W. H. Pl. dates 1895. Dec 4. 9. 1896. Jan 2*
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 Book 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 gear Supplied.

Richard Hors

It is submitted that this vessel is eligible for THE RECORD.

L.M.C. 1. 96

L.S. Pms.

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

The amount of Entry Fee. £ *2* : *0* : *0* When applied for, *27.1.18 96*
Special £ *32* : *0* : *0* When received, *27.1.18 96*
Donkey Boiler Fee £ : :
Travelling Expenses (if any) £ : :
199

Committee's Minute *FRI. JAN 31 1896*

Assigned

+ L.M.C. 1. 96

MACHINERY CERTIFICATE WRITTEN.



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Lloyd's Register Foundation

Signal Letter
Official No.
105,7
No., Date, and
Whether British
Foreign Built
British
Number of Decks
Number of Masts
Rigged
Stern
Build
Galleries
Head
Framework and
vessel
Number of Buoy
Number of watertight
and their capacity
Total to quarter
at side amidships
No. of Engines
Direct
Triple
One
Number of
Iron or Steel
Pressure water
Under Tonnage
Closed-in spaces
Space or spaces
Poop
Forecastle
Round House
Other closed-in
Chart
Excess
Spaces
Lig
Gross
Deductions, as per
Register
Name of
No. of Owners
Name, Residence
Ship
Dated *13*