

## REPORT ON MACHINERY.

Port of MIDDLESBROUGH-ON-TEES.Received at London Office THUR. 3 NOV 1898No. in Survey held at Stockton  
Reg. Book.Date, first Survey 2<sup>nd</sup> Dec 1897 Last Survey 20<sup>th</sup> Oct 1898(Number of Visits 43)

on the

S.S. "Peerless."Tons } Gross 3111.92  
Net 2011.32Master J. Aikman Built at ThornabyBy whom built Richardson, Duck & Co When built 1898.Engines made at StocktonBy whom made Blair & Gray Ltdwhen made 1898.Boilers made at StocktonBy whom made Blair & Gray Ltdwhen made 1898.Registered Horse Power 256.Owners Hall BrothersPort belonging to NewcastleNom. Horse Power as per Section 28 255.Is Electric Light fitted No.ENGINES, &c.—Description of Engines Triple ExpansionNo. of Cylinders 3.No. of Cranks 3.Diameter of Cylinders 23", 38" & 62 1/2" Length of Stroke 42" Revolutions per minute 58 Diameter of Screw shaft as per rule 11.59Diameter of Tunnel shaft as per rule 10.5 Diameter of Crank shaft journals 12 1/2" Diameter of Crank pin 13" Size of Crank webs 20" x 8 1/2" 13.Diameter of screw 17'-0" Pitch of screw 16 1/2 ft No. of blades 4. State whether moveable Yes. Total surface 78 sq. ftNo. of Feed pumps 2. Diameter of ditto 3" Stroke 30" Can one be overhauled while the other is at work YesNo. of Bilge pumps 2. Diameter of ditto 4 1/2" Stroke 30" Can one be overhauled while the other is at work YesNo. of Donkey Engines 2. Sizes of Pumps 9" x 10" 4" x 8" No. and size of Suctions connected to both Bilge and Donkey pumpsIn Engine Room Four. 3" diameter In Holds, &c. For 2 two 3" dia? aft two 3" dia? — tunnel well 2 1/2" dia? —No. of bilge injections 2. sizes 4 1/2" 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 NoneAre all connections with the sea direct on the skin of the ship Yes Are they Valves or Cocks bothAre 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 aboveAre 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 YesThat 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 YesAre the bilge suction pipes, cocks, and valves arranged so as to prevent any communication between the sea and the bilges YesThen were stern tube, propeller, screw shaft, and all connections examined in dry dock on stocks Is the screw shaft tunnel watertight apparentlyIs it fitted with a watertight door Yes worked from upper platformBOILERS, &c.— (Letter for record (S)) Total Heating Surface of Boilers 3900 sq. ft. Is forced draft fitted NoNo. and Description of Boilers 2 B.E. Multitubular Working Pressure 160 lbs Tested by hydraulic pressure to 320 lbsDate of test 7.9.98 Can each boiler be worked separately Yes Area of fire grate in each boiler 52.8" No. and Description of safety valves toeach boiler two d. out spring Area of each valve 7.06" Pressure to which they are adjusted 165 lbs Are they fittedwith easing gear Yes Smallest distance between boilers or uptakes and bunkers on woodwork 18" Mean diameter of boilers 15'-0"Length 10'-0" Material of shell plates steel Thickness 1 1/32" Description of riveting: circum. seams ends d. h. lap long. seams d. butt str.Diameter of rivet holes in long. seams 1 1/4" Pitch of rivets 1 row 8 7/8" 2 rows 4 7/16" Lap of plates 8" width of butt straps 6 1/2" & 19 1/4"Percentages of strength of longitudinal joint 89. Working pressure of shell by rules 174 lbs Size of manhole in shell 17" x 13"No. of compensating ring 31 x 27 x 1 1/32" No. and Description of Furnaces in each boiler 3 Ribbed Material steel Outside diameter 43"Length of plain part top 36'-3" bottom 36'-3" Thickness of plates 3 1/32" Description of longitudinal joint weld No. of strengthening rings —Working pressure of furnace by the rules 175 lbs Combustion chamber plates: Material steel Thickness: Sides 7/16" Back 7/16" Top 7/16" Bottom 15/16"Pitch of stays to ditto: Sides 9 1/4" x 9 5/8" Back 9 1/2" x 9" Top 9 1/2" x 9 1/4" If stays are fitted with nuts or riveted heads Nuts Working pressure by rules 174 lbsMaterial of stays steel Diameter at smallest part 1 9/16" Area supported by each stay 93.8" Working pressure by rules 183 lbs End plates in steam space:Material steel Thickness 1 1/8" Pitch of stay 20" x 18 1/2" How are stays secured d. nuts Working pressure by rules 161 lbs Material of stays steelDiameter at smallest part 2 7/8" Area supported by each stay 370" Working pressure by rules 175 lbs Material of Front plates at bottom steelThickness 1" Material of Lower back plate steel Thickness 1 1/8" Greatest pitch of stays 14" Working pressure of plate by rules 211 lbsDiameter of tubes 3 1/4" Pitch of tubes 4 1/2" x 4 5/8" Material of tube plates steel Thickness: Front 1" Back 13/16" Mean pitch of stays 9 7/8"Pitch across wide water spaces 14 3/4" Working pressures by rules 176 lbs Girders to Chamber tops: Material steel Depth andThickness of girder at centre 7" x 1 1/2" Length as per rule 26 1/4" Distance apart 9 1/4" Number and pitch of Stays in each 2. 9 1/2"Working pressure by rules 178 lbs Superheater or Steam chest; how connected to boiler None Can the superheater be shut off and the boiler workedseparately — Diameter — Length — Thickness of shell plates — Material — Description of longitudinal joint — Diam. of rivetPitch 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 *Multitubular 2 plain furnaces*  
 Made at *Warrington* By whom made *Andrew & Co Ltd* When made *3.6.98* Where fixed *deckhouse*  
 Working pressure *90 lbs* tested by hydraulic pressure to *180 lbs* No. of Certificate *1719* Fire grate area *28 sq* Description of safety valves *d. spring*  
 No. of safety valves *2* Area of each *6 sq* Pressure to which they are adjusted *90 lbs* If fitted with easing gear *yes* If steam from main boilers can enter the donkey boiler *no* Diameter of donkey boiler *9'-0"* Length *9'-0"* Material of shell plates *S. 27-32* Thickness *17/32*  
 Description of riveting long seams *tub riv lap* Diameter of rivet holes *7/8* Whether punched or drilled *dr.* Pitch of rivets *2 rows 4 1/2"*  
 Lap of plating *6 5/8* Per centage of strength of joint Rivets *85.2* Thickness of shell *and* plates *1/8* Radius of do. *Pitch* of Stays to do. *12 x 16 1/2*  
 Dia. of stays *2 1/16 off wire* Diameter of furnace Top *33"* Bottom *32 1/2"* Thickness of furnace plates *top 15/32* Description of joint *d. butt str.* Thickness of furnace crown plates *9/16* Stayed by *1 1/4" Champion iron 9" pitch* Working pressure of shell by rules *94 lbs*  
 Working pressure of furnace by rules *90 lbs* Diameter of uptake *3"* Thickness of uptake plates *7/8 x 9/16* Thickness of water tubes *5/16*

SPARE GEAR. State the articles supplied:— *Top and bottom end bolts and nuts. Main bearing & coupling bolts & nuts. Feed bilge & donkey valves. Tail shaft and propeller.*

The foregoing is a correct description,  
 FOR BLAIR & CO, LIMITED. Manufacturers of Engines and Marine Boilers

*P. J. Blair* DIRECTOR. 1897. Dec 2. 7. Feb 2. May 2. 11. 17. 28. June 2. 7. 9. 14. 27. 30. July 5. 6. 11. 13. 18  
 Dates of Survey { During progress of work in shops -  
 { During erection on board vessel - 19. 25. 28. Aug. 3. 9. 11. 23. 27. Sept 6. 13. 15. 20. 21. 26. 27. 28. 29. 30. Oct 6. 11. 14. 15. 17. 20.  
 building { Total No. of visits *Forty-three.*

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

*These engines and boilers have been built under special survey and are of good workmanship and materials, they have been properly fitted and secured on board the vessel, and on completion tried under steam at moorings with satisfactory results. —*

*The Vessel's machinery is now in a good and efficient working order and in my opinion eligible to the notation of: **L.M.C. 10.98.** — in the Society's Register. —*

It is submitted that this vessel is eligible for THE RECORD. L M C 10. 98

*A.C.H.*  
*3. 11. 98*  
*4. 11. 98*

The amount of Entry Fee, £ 2 : 0 : 0 When applied for,  
 Special . . . . . £ 32 : 15 : 0 21. 10. 18. 98.  
 Donkey Boiler Fee . . . . . £ : : : When received,  
 Travelling Expenses (if any) £ : : : 21. 10. 18. 98.

Committee's Minute FRI, 4 NOV 1898

*R. J. D. J. M. Sanderford*  
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.  
 Middlesbrough, Tees.



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.