

REPORT ON MACHINERY.

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Port of *Middlesbrough-Tees.*

Received at London Office

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Survey held at *Stockton-on-Tees* Date, first Survey *13th Decr 1889* Last Survey *6th August 1890*

(Number of Visits *30*)

on the *Screw Steamer "Pakeha"*

Tons { Gross *4331*
Net *2842*
When built *1890*

er *Stockton* Built at *Stockton* By whom built *Ropner & Son*

nes made at *Stockton* By whom made *Blair & Co^y Limited* when made *1890*

rs made at *Stockton* By whom made *Blair & Co^y Limited* when made *1890*

tered Horse Power *1800. 500/hp* Owners *Shaw, Saville & Allison & Co^{ys} Ltd* Port belonging to *Southampton*

INES, &c.—

tion of Engines *Triple expansion, horizontal, direct acting, surface condensing, & compound* No. of Cylinders *Three*

Cylinders *28" - 46" - 75"* Length of Stroke *48"* Rev. per minute *60* Point of Cut off, High Pressure *1/2* Low Pressure *1/2*

of Screw shaft *18 1/2"* Diam. of Tunnel shaft *14 1/2"* Diam. of Crank shaft journals *18"* Diam. of Crank pin *18 1/2"* size of Crank webs *28 1/2" x 10 1/2"*

of screw *18" 0"* Pitch of screw *1 1/4" 0"* No. of blades *44* state whether moveable *Yes* total surface *85 1/2 Sq. feet.*

Feed pumps *2* diameter of ditto *3 1/2"* Stroke *34"* Can one be overhauled while the other is at work *Yes*

Bilge pumps *2* diameter of ditto *8"* Stroke *34"* Can one be overhauled while the other is at work *Yes*

to they pump from *Fore, Main & After Holds, Eng. Room Bilges, Tunnel, after hold, Sea & Ballast tanks.*

Donkey Engines *Two* Size of Pumps *(9 x 5)"* *(12 x 3)"* *(10 x 3)"* Where do they pump from *Feed - Sea, Hotwell & Tanks.*

ast - Sea, this Condenser, All Ballast tanks, Fore, Main & After Holds, Eng. Room Bilges, Tunnel & after hold.

he bilge suction pipes fitted with roses *Yes* Are the roses always accessible *Yes* Are the sluices on Engine room bulkheads always accessible *Yes*

ilge injections *1* and sizes *1/4"* Are they connected to condenser, or to circulating pump *Circulating pump.*

the pumps worked *By Levers from the crosshead of the After Engine.*

onnections with the sea direct on the skin of the ship *Yes* Are they Valves or Cocks *Both.*

fized 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*

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*

ipes are carried through the bunkers *None.* How are they protected *By the hull.*

pipes, cocks, valves, and pumps in connection with the machinery accessible at all times *Yes*

pipes, cocks, and valves arranged so as to prevent an unintentional connection between the sea and the bilges *Yes.*

ere stern tube, propeller, screw shaft, and all connections examined in dry dock *New vessel, before launching.*

shaft tunnel watertight *Yes* and fitted with a sluice door *Yes* worked from *Top platform of Engine Room.*

, &c.—

h & Foreign Shippi *Two* Description *1st. Double end. Double end. Material Steel* Letter (for record) *S.*

OF MATERIAL OF BO *Pressure 160 lbs.* Tested by hydraulic pressure to *220 lbs* Date of test *20th June 1890. (12.1061)*

of superheating apparatus or steam chest *None.* Heating Surface *6590 Sq. feet.*

lar be worked separately *Yes* Can the superheater be shut off and the boiler worked separately *Yes*

feet of fire grate surface in each boiler *82 Sq. ft.* Description of safety valves *Direct spring* No. to each boiler *Two*

valve *11 1/4" Sq. in.* Are they fitted with easing gear *Yes* No. of safety valves to superheater *Two* area of each valve *Two*

d with easing gear *Yes* Smallest distance between boilers and bunkers or woodwork *18"* Diameter of boilers *13' 6 1/2"*

lers *14' 0"* description of riveting of shell long. seams *D. B. Sharp Treble circum. seams lap double Treble* Thickness of shell plates *1 1/2"*

rivet holes *1 1/4"* whether punched or drilled *Drilled* pitch of rivets *8 1/2"* *4 1/2"* Lap of plating *18 1/2"* *6 1/2" x 8 1/2"*

f strength of longitudinal joint *85%* working pressure of shell by rules *16 1/4 lbs.* size of manholes in shell *16" x 12"*

nsating rings *28" x 24" x 1 1/2"* No. of Furnaces in each boiler *4* Description of Furnaces *Corrugated.*

eter *3' 10"* length *6' 3"* thickness of plates *1 1/2"* description of joint *Welded.* if rings are fitted *Yes*

th between rings *Yes* working pressure of furnace by the rules *16 1/2 lbs.* combustion chamber plating, thickness, sides *3/16"* back *3/16"* top *3/16"*

to ditto, sides *1/2" x 1/2"* back *1/2" x 1/2"* top *1/2" x 1/2"* If stays are fitted with nuts or riveted heads *Not* working pressure of plating by

1 1/4 lbs. Diameter of stays at smallest part *1 1/2"* working pressure of ditto by rules *1 1/4 lbs.* end plates in steam space, thickness *1 1/4"*

ys to ditto *15 1/2" x 15"* how stays are secured *Double nut & washer.* working pressure by rules *1 1/4 lbs.* diameter of stays at

part *2 3/8"* working pressure by rules *1 1/4 lbs.* Front plates at bottom, thickness *1"* Back plates, thickness *1"*

h of stays *Yes* working pressure by rules *Yes* Diameter of tubes *3 1/2"* pitch of tubes *4 1/4" x 4 1/8"* thickness of tube

ont *1"* back *1"* how stayed *Stay tubes.* pitch of stays *9 1/4" x 9 1/2"* width of water spaces *5"*

Superheater or Steam chest *Yes* length *Yes* thickness of plates *Yes* description of longitudinal joint *Yes* diam. of rivet holes *Yes*

ets *Yes* working pressure of shell by rules *Yes* diameter of flue *Yes* thickness of plates *Yes* If stiffened with rings *Yes*

ween rings *Yes* working pressure by rules *Yes* end plates of superheater, or steam chest; thickness *Yes* how stayed *Yes*

Superheater or steam chest; how connected to boiler *Yes*



DONKEY BOILER— Description

Made at _____ by whom made _____ when made _____ where fixed **221**
 Working pressure _____ tested by hydraulic pressure to _____ No. of Certificate _____ fire grate area _____ description of
 valves _____ No. of safety valves _____ area of each _____ if fitted with easing gear _____ if steam from main _____
 enter the donkey boiler _____ diameter of donkey boiler _____ length _____ description of riveting _____
 Thickness of shell plates _____ diameter of rivet holes _____ whether punched or drilled _____ pitch of rivets _____ lap of plates _____
 per centage of strength of joint _____ thickness of crown plates _____ stayed by _____
 Diameter of furnace, top _____ bottom _____ length of furnace _____ thickness of plates _____ description of joint _____
 Thickness of furnace crown plates _____ stayed by _____ working pressure of shell by rules _____
 Working pressure of furnace by rules _____ diameter of uptake _____ thickness of plates _____ thickness of water tubes _____

SPARE GEAR. State the articles supplied:— 1 Slide valve spindle, 1 Air pump rod & bucket, 1
 Crank pin brasses, 1 set cross head brasses, 1 Circulating pump rod, 1 Crank
 1 Propeller shaft, 2 Propeller blades & 1 set studs; 1 Hps. packing ring set of 4
 1 set Feed & Melpis pump valves, 1 Safety valve spring; 3-2 Luns for eccentric straps
 The foregoing is a correct description, 25 Bolts & nuts, 2 each main bearing, crank crosshead &
 1 set coupling bolts etc.
John Blair & Co. Ltd Manufacturers of main engines & boilers.

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

The materials and workmanship are of the best descrip.
 An evaporator and Heiss patent Feed Water pump are fitted.
 The engines and Boilers have been constructed under
 survey; when fitted on board they were tried and work
 satisfactorily; and the main and auxiliary Boilers safely
 are now admitted to carry working pressures of 160 lbs and 90
 lbs respectively.

The vessel has proceeded to London where Refrigerator
 to be put on board. The main & auxiliary Boilers are fitted with
 valves and from these steam pipes have to be carried to the
 steam for working the Refrigerator engines. These pipes should
 be tested by hydraulic pressure and a non-return stop valve
 will require to be fitted to the auxiliary boiler on view of the
 difference of the steam pressures.

The whole machinery is now in good and efficient
 condition and will be eligible in my opinion to have
 the notation **L.M.C. 8, 90.** marked in the Register Book, when
 the above mentioned work has been satisfactorily completed.

It is submitted that this vessel will be eligible to
 have **L.M.C. 8 90** recorded when the above work
 has been satisfactorily completed.

W.D.
 14-8-90

The amount of Entry Fee .. £ 3 : - : - received by me.
 Special .. £ 40 : 15 : -
 Donkey Boiler Fee .. £ : : :
 Certificate (if required) .. £ : : : 14/8 1890
 To be sent as per margin.
 (Travelling Expenses, if any, £)

Committee's Minute

FRI 15 AUGUST 1890

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

TUES 4 NOV 1890

+ L.M.C. 8, 90 when