

# REPORT ON MACHINERY.

23364

Port of Liverpool

Received at London Office JUN 15 1889

Date, first Survey February 15

Last Survey September 26 1889

(Number of Visits 34)

2893

Tons 1859

No. in Survey held at 23364  
 Reg. Book.

on the S.S. "Bunjaree"

Master Bliss Built at Liverpool By whom built Ashmun Richardson & Co When built 1889

Engines made at Liverpool By whom made Ashmun Richardson & Co when made 1889

Condensers made at do By whom made do when made 1889

Registered Horse Power 450 Owners P. Lund Port belonging to London

## ENGINES, &c.

Description of Engines Triple expansion Surface condensing

Diameter of Cylinders 28" 4 1/2" 7 3/4" Length of Stroke 48" No. of Rev. per minute 65 Point of Cut off, High Pressure 73% Low Pressure 60%

Diameter of Screw shaft 13 1/2" Diam. of Tunnel shaft 12 1/2" Diam. of Crank shaft journals 13 1/2" Diam. of Crank pin 13 1/4" size of Crank webs 8 1/2" x 21"

Diameter of screw 16 6/8" Pitch of screw 20.0 No. of blades 4 state whether moveable yes total surface 80 sq

No. of Feed pumps 2 diameter of ditto 3 3/8" Stroke 28" Can one be overhauled while the other is at work yes

No. of Bilge pumps 2 diameter of ditto 4" Stroke 28" Can one be overhauled while the other is at work yes

Where do they pump from Sub pump from hot well. Bilge from engine space, hold, tanks & Sea

No. of Donkey Engines 2 Size of Pumps 4" dia x 8" st. & 9" dia x 10" st. Where do they pump from Tanks, engine space

Are all the bilge suction pipes fitted with roses yes Are the roses always accessible yes Are the sluices on Engine room bulkheads always accessible yes

No. of bilge injections 1 and sizes 4" Are they connected to condenser, or to circulating pump Circulating pump

How are the pumps worked Levers on after engine

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 none How are they protected -

Are all pipes, cocks, valves, and pumps in connection with the machinery accessible at all times yes

Are the pipes, cocks, and valves arranged so as to prevent an unintentional connection between the sea and the bilges yes

When were stern tube, propeller, screw shaft, and all connections examined in dry dock never

Is the screw shaft tunnel watertight - and fitted with a sluice door yes worked from Upper platform

## OILERS, &c.

Number of Boilers 2 Description Cylindrical double ended Whether Steel or Iron Steel

Working Pressure 150 Tested by hydraulic pressure to 300 Date of test 13.8.89 No. of Co. 2943

Description of superheating apparatus or steam chest none

Can each boiler be worked separately yes Can the superheater be shut off and the boiler worked separately -

No. of square feet of fire grate surface in each boiler 94.68 Description of safety valves Spring No. to each boiler 2

Area of each valve 11.04 Are they fitted with easing gear yes No. of safety valves to superheater - area of each valve -

Are they fitted with easing gear - Smallest distance between boilers and bunkers or woodwork 14" Diameter of boilers 14.3"

Length of boilers 16.0" description of riveting of shell long. seams N.B. Strap circum. seams Sept. 3 double Thickness of shell plates 1 1/16"

Diameter of rivet holes 1 1/2" x 1 1/16" whether punched or drilled Drilled pitch of rivets 8 1/2" x 5 1/8" Lap of plating 2 1/2" x 1 1/8"

Percentage of strength of longitudinal joint 84.4 working pressure of shell by rules 151 size of manholes in shell 16" x 12"

Size of compensating rings 7 1/2" x 1 1/16" No. of Furnaces in each boiler 6

Outside diameter 3.3 1/2" length, top 6.0" bottom 5.9" thickness of plates 32 x 5/16" description of joint N.B. Strap if rings are fitted 1/2"

Greatest length between rings 5.9" working pressure of furnace by the rules 157 combustion chamber plating, thickness, sides 1 1/32" back - top 1 1/32"

Pitch of stays to ditto, sides 8 1/4" back - top 8 1/4" If stays are fitted with nuts or riveted heads Nuts working pressure of plating by rules 168 Diameter of stays at smallest part 1 1/8" working pressure of ditto by rules 179 end plates in steam space, thickness 1"

Pitch of stays to ditto 15 7/16" x 1 1/4" how stays are secured N.B. Strap working pressure by rules 161 diameter of stays at smallest part 2 1/4" working pressure by rules 163 Front plates at bottom, thickness 1/4" Back plates, thickness -

Greatest pitch of stays 1 3/16" working pressure by rules - Diameter of tubes 3 1/4" pitch of tubes 4 1/2" x 4 1/8" thickness of tube plates, front 1 3/16" back 1 3/16" how stayed Tubes pitch of stays 9" width of water spaces 6 1/2"

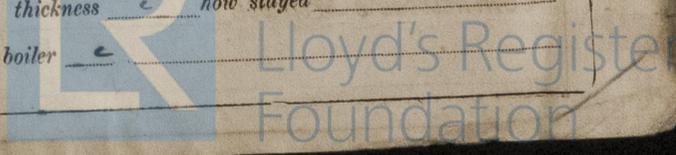
Diameter of Superheater or Steam chest none length - thickness of plates - description of longitudinal joint - diam. of rivet holes -

Pitch of rivets - working pressure of shell by rules - diameter of flue - thickness of plates - If stiffened with rings -

Distance between rings - working pressure by rules - end plates of superheater, or steam chest; thickness - how stayed -

Superheater or steam chest; how connected to boiler -

Report No. 411999  
 Date of Survey 15/2/89  
 Description of Furnaces  
 Plan  
 No. 10-0279



Workmanship. Are the butts of plating planed or otherwise fitted? *Planed*

REPORT ON MACHINERY

**DONKEY BOILER**— Description *Best*  
 Made at *Walshead* by whom made *Clarke Chapman & Co* when made *26.4.89* where fixed *Stoke New*  
 Working pressure *80* tested by hydraulic pressure to *160* No. of Certificate *2922* fire grate area *22 4* description of safety  
 valves *Spring* No. of safety valves *2* area of each *5.94* if fitted with easing gear *9.28* if steam from main boilers can  
 enter the donkey boiler *No* diameter of donkey boiler *6.6* length *14.0* description of riveting *Lap double*  
 Thickness of shell plates *3/16* diameter of rivet holes *3/8* whether punched or drilled *Drilled* pitch of rivets *3 1/16* lap of plating *1 1/4*  
 per centage of strength of joint *72* thickness of crown plates *3/16* stayed by *7 Stay 1 1/2" diam.*  
 Diameter of furnace, top *3.0* bottom *5.7* length of furnace *-* thickness of plates *3/16* description of joint *Lap Single*  
 Thickness of furnace crown plates *3/16* stayed by *Same as shell crown* working pressure of shell by rules *84*  
 Working pressure of furnace by rules *80* diameter of uptake *10 1/2* thickness of plates *3/16* thickness of water tubes *3/16*

**SPARE GEAR.** State the articles supplied:— *2 main bearing bolts & nuts. 2 top end bolts & nuts. 2 bottom end bolts & nuts. 1 set of shaft coupling bolts & nuts. Air & circulating pumps buckets & rods. head valve for Air pump. Feed & bilge pump valves. Feed check valve. 1 pair of bottom end crapes. 2 propeller blades. 1 piston pump. 1/2 brick tubes. 50 condenser tubes. 1 escape and safety valve. Spring bolts & nuts & wire.*  
 The foregoing is a correct description,  
*Wigham Richardson & Co. Manufacturer.*

**General Remarks** (State quality of workmanship, opinions as to class, &c.) *The machinery has been specially surveyed during construction the material and workmanship good and renders the vessel eligible in our opinion to have the Record + L & C 10. 89 in the Register Book of the Society.*

Heating Surface = *7338* sq  
 H.P. as per rule = *428* H.P.

*It is submitted that this vessel is eligible to have + L.M.C. 9.89 recorded*  
*W.A.*  
*15.10.89*

The amount of Entry Fee .. £ *3* : - : *received by me,*  
 Special .. £ *41* : *8* : -  
 Donkey Boiler Fee .. £ - : - : -  
 Certificate (if required) .. £ *free* *19/10/89*  
 To be sent as per margin.

*Richard J. Napier*  
*Richard James Wallis*  
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

Committee's Minute **FRIDAY 18 OCT 1889**  
 + *Emc 9.89*  
 cert 20/12/19/20

