

REPORT ON MACHINERY.

No. 13880

No. in Survey held at Sunderland

Date, first Survey 15th July 1885 Last Survey 30th Janry 1886

Received at London Office THURS 11 FEB 1886

Reg. Book.

(Number of Vials 42)

502
Tons 314

on the S.S. "Azalea"

Master W Lumley Built at Sunderland By whom built Sunderland S. Building Co When built 1886

Engines made at Sunderland By whom made H. E. M. Engineering Co when made 1886

Boilers made at Sunderland By whom made North Eastern Marine Engineering Co when made 1886

Registered Horse Power 80 Owners Messrs Leach & Co Port belonging to London

ENGINES, &c.—

Description of Engines Two cylinders C.I.D.A.S.C.
 Diameter of Cylinders 20" x 40" Length of Stroke 24" No. of Rev. per minute 60 Point of Cut off, High Pressure 1/2 stroke Low Pressure 1/2 stroke
 Diameter of Screw shaft 4" Diam. of Tunnel shaft 6 3/4" Diam. of Crank shaft journals 4 1/2" Diam. of Crank pin 4 1/2" size of Crank webs 8" x 5"
 Diameter of screw 9-6" Pitch of screw 13-0" No. of blades 4 state whether moveable not total surface 33 sq ft
 No. of Feed pumps 1 diameter of ditto 3 1/4" Stroke 24" Can one be overhauled while the other is at work —
 No. of Bilge pumps 1 diameter of ditto 3 1/4" Stroke 24" Can one be overhauled while the other is at work —

Where do they pump from Fore hold. engine room. and after well
 No. of Donkey Engines 1 Size of Pumps 4" x 6" Where do they pump from Fore hold. engine room
sea. after tank and after well & condenser

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 one and sizes 4" Are they connected to condenser, or to circulating pump Circulating pump
 How are the pumps worked By crossheads direct on both engines
 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 New vessel

Is the screw shaft tunnel watertight yes and fitted with a sluice door yes worked from top platform of engine room
 BOILERS, &c.—
 Number of Boilers One Description Cylindrical multitubular single ended Whether Steel or Iron Steel excepting stay tubes
 Working Pressure 90 lbs Tested by hydraulic pressure to 180 lbs Date of test 10th Nov 1885 (and angles)

Description of superheating apparatus on steam chest Horizontal dome
 Can each boiler be worked separately only one Can the superheater be shut off and the boiler worked separately no superheater
 No. of square feet of fire grate surface in each boiler 33 sq ft Description of safety valves Direct spring No. to each boiler 2
 Area of each valve 9.62 sq ft 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 15" Diameter of boilers 12-0"
 Length of boilers 9-10 3/4" description of riveting of shell long. seams triple riv lap circum. seams double riveted Thickness of shell plates 49/64
 Diameter of rivet holes 1 3/32" whether punched or drilled drilled pitch of rivets 4 1/4" Lap of plating 4"
 Percentage of strength of longitudinal joint 1/4-2 sp working pressure of shell by rules 92 lbs size of manholes in shell 16" x 12"
 Size of compensating rings 6" x 1" No. of Furnaces in each boiler 2

Outside diameter 3-5 1/2" length, top 6-4" bottom 6-4" thickness of plates 1 1/2" description of joint double butt single if rings are fitted 1/2 on bottom
 Greatest length between rings 6-4" working pressure of furnace by the rules 94 lbs combustion chamber plating, thickness, sides 1/2" back 1/2" top 1/2"
 Pitch of stays to ditto, sides 8 3/4" x 8 3/4" back 9 1/4" x 8 3/4" top 9 1/2" x 8 3/4" If stays are fitted with nuts or riveted heads nuts working pressure of plating by
 rules 101 lbs Diameter of stays at smallest part 1-33" working pressure of ditto by rules 143 lbs and plates in steam space, thickness 3/4"
 Pitch of stays to ditto 15" x 15" how stays are secured double nuts working pressure by rules 90 lbs diameter of stays at
 smallest part 2 1/16" working pressure by rules 104 lbs Front plates at bottom, thickness 5/8" Back plates, thickness 1/16"
 Greatest pitch of stays 12 1/4" working pressure by rules 96 lbs Diameter of tubes 3 1/2" pitch of tubes 4 3/4" x 5" thickness of tube
 plates, front 3/4" back 3/4" how stayed stay tubes pitch of stays 15" x 14 1/4" width of water spaces 6, 9, 1 1/4, 1 1/2"
 Diameter of Superheater on Steam chest 3-0" length 6-0" thickness of plates 3/8" description of longitudinal joint double riv lap diam. of rivet holes 3/4"
 Pitch of rivets 2 1/2" working pressure of shell by rules 140 lbs 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 1/2" how stayed dishto 4 ft radius
 Superheater or steam chest; how connected to boiler by a neck 16 1/2" x 3/4"

DONKEY BOILER— Description *Cylindrical. Vertical. 3 horizontal water tubes*
 Made at *Stockton* by whom made *Mepps Riley Bros* when made *22.12.85* where fixed *Stokehold*
 Working pressure *90 lbs* tested by hydraulic pressure to *180 lbs* No. of Certificate *12.91* fire grate area *16 sq ft* description of safety
 valves *Direct spring* No. of safety valves *one* area of each *9.6 sq ft* if fitted with easing gear *yes* if steam from main boilers can
 enter the donkey boiler *no* diameter of donkey boiler *5-6"* length *9-0"* description of riveting *dbl riv lap*
 Thickness of shell plates *17/32"* diameter of rivet holes *13/16"* whether punched or drilled *punched* pitch of rivets *2 3/4"* lap of plating *4 1/2"*
 per centage of strength of joint *70%* thickness of crown plates *1/2"* stayed by *Uptake & 5 vertical stay 1 1/2" diam*
 Diameter of furnace, top *4-5"* bottom *4-9 3/4"* length of furnace *3-8"* thickness of plates *5/8"* description of joint *single riv lap*
 Thickness of furnace crown plates *1/2"* stayed by *Uptake and 5 vertical stay 1 1/2" diam* working pressure of shell by rules *91 lbs*
 Working pressure of furnace by rules *90 lbs* diameter of uptake *13"* thickness of plates *7/16"* thickness of water tubes *3/8"*

SPARE GEAR. State the articles supplied:— *Two tops two bottom end connecting rod bolts & nuts*
two main bearing bolts & nuts, one set of feed & bilge pump valves & seats
one set of coupling bolts. Iron bolts & nuts assorted. Crank shaft gauge etc

The foregoing is a correct description,

North Eastern Marine Engineering Co. Manufacturer. of Marine Engines & Boilers

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

The machinery of this vessel has been built under special survey. The material and workmanship are good and efficient and the engines when tried under steam worked satisfactory. In my opinion the engines and boilers of this vessel are in good order and safe working condition and eligible for the notification in the Register Book of LLOYD'S M.C.1.86.

*Go submit this to the committee
 as per letter of 11/2/86
 J. M. C. [Signature]*

(a)

The amount of Entry Fee .. £ *1* : — : — received by me,
 Special .. £ *12* : *0* : *0*
 Donkey Boiler Fee .. £ — : — : —
 Certificate (if required) .. £ — : — : — 18
 To be sent as per margin.
 (Travelling Expenses, if any, £ — : — : —)

Paid see letter attached

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

Committee's Minute **FRIDAY 12 FEB 1886**

