

# REPORT ON MACHINERY.

110  
MON 14 JULY 1890

Port of *Sunderland*

No. *15541* Inbr *92 110*  
No. in Survey held at *Sunderland*  
Reg. Book.  
on the *S.S. "Salado"*

Date, first Survey *24<sup>th</sup> January* Last Survey *7<sup>th</sup> July* 1890  
(Number of Visits *20*)

Master *Raylton Dixon & Co* Built at *Middlesboro'* By whom built *North Eastern Marine Eng Co* when made *1890*  
Engines made at *Sunderland* By whom made *North Eastern Marine Eng Co* when made *1890*  
Boilers made at *Sunderland* By whom made *North Eastern Marine Eng Co* when made *1890*  
Registered Horse Power *200* Owners *A. Holland & Co* Port belonging to *London*  
Rule " " *199*

ENGINES, &c.—  
Description of Engines *Triple compound, three cranks* No. of Cylinders *3*  
Diam. of Cylinders *21.35.54* Length of Stroke *39"* Rev. per minute *60* Point of Cut off, High Pressure *1/2 stroke* Low Pressure *1/2 stroke*  
Diameter of Screw shaft *10 3/4"* Diam. of Tunnel shaft *10 1/4"* Diam. of Crank shaft journals *10 3/4"* Diam. of Crank pin *10 3/4"* size of Crank webs *4" x 16"*  
Diameter of screw *14-6"* Pitch of screw *15-3"* No. of blades *4* state whether moveable *not* total surface *55 sq*  
No. of Feed pumps *2* diameter of ditto *3 1/2"* Stroke *21"* Can one be overhauled while the other is at work *yes*  
No. of Bilge pumps *2* diameter of ditto *4"* Stroke *21"* Can one be overhauled while the other is at work *yes*  
Where do they pump from *fore hold, engine room, after well & sea & tanks*  
No. of Donkey Engines *2* Size of Pumps *8 x 9 & 3 1/2 x 5* Where do they pump from *3 tanks, sea, hot well*  
*after well engine room & fore hold*  
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 levers on intermediate 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 *new vessel*  
Is the screw shaft tunnel watertight *yes* and fitted with a sluice door *yes* worked from *Top platform in Engine Room*

OILERS, &c.—  
No. of Boilers *2* Description *Ordinary marine type* Material *Steel excepting tubes* Letter (for record) *S*  
Working Pressure *160 lbs* Tested by hydraulic pressure to *320 lbs* Date of test *11-6-1890*  
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 superheater*  
No. of square feet of fire grate surface in each boiler *45 sq* Description of safety valves *direct spring* to each boiler *2*  
Area of each valve *4.04 sq* Are they fitted with easing gear *yes* No. of safety valves to superheater *2* area of each valve  
Are they fitted with easing gear *yes* Smallest distance between boilers and bunkers or woodwork *15"* Diameter of boilers *13-4"*  
Length of boilers *9-9"* description of riveting of shell long. seams *double butt strap* circum. seams *double riv. lap* Thickness of shell plates *1 3/16"*  
Diameter of rivet holes *1 1/8"* whether punched or drilled *drilled* pitch of rivets *4" & 3 1/2"* Lap of plating *16" straps*  
Percentage of strength of longitudinal joint *83.9%* working pressure of shell by rules *162 lbs* size of manholes in shell *16" x 12"*  
Size of compensating rings *8" x 1 3/16"* No. of Furnaces in each boiler *3* Description of Furnaces *plain*  
Outside diameter *3-0"* length *6 feet* thickness of plates *3/4"* description of joint *welded* if rings are fitted *no*  
Greatest length between rings *15 7/8"* working pressure of furnace by the rules *183 lbs* combustion chamber plating, thickness, sides *9/16"* back *9/16"* top *9/16"*  
Pitch of stays to ditto, sides *4 3/4" x 4 3/4"* back *4 3/4" x 4 3/4"* top *4 3/4" x 4 3/4"* stays are fitted with nuts or riveted heads *nuts* working pressure of plating by rules *161 lbs*  
Diameter of stays at smallest part *1-33* working pressure of ditto by rules *144 lbs* plates in steam space, thickness *1 7/16"*  
Pitch of stays to ditto *15 7/8" x 15 3/4"* how stays are secured *nuts* working pressure by rules *160 lbs* diameter of stays at smallest part *2 5/8"*  
working pressure by rules *161 lbs* Front plates at bottom, thickness *3/4"* Back plates, thickness *1/8"*  
Greatest pitch of stays *11 1/2"* working pressure by rules *144 lbs* Diameter of tubes *3 1/4"* pitch of tubes *4 1/2" x 4 1/2"* thickness of tube plates, front *13/16"* back *3/4"* how stayed *stay tubes* pitch of stays *9" x 9"* width of water spaces *1 1/4"*  
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 *—*  
Total heating surface *3060 sq* Superheater or steam chest; how connected to boiler *—*



## DONKEY BOILER—

Description *Single ended below deck boiler with 2 furnaces*Made at *Hockley*by whom made *Riley Bros.*when made *1890* where fixed *on Lloyd's vessel*Working pressure *80 lbs* tested by hydraulic pressure to *160 lbs* No. of Certificate *1064* fire grate area *20 sq. feet* description of safety valves *Spring*No. of safety valves *2*area of each *100 sq. ins*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' 0"*description of riveting *Long Lap Double*Thickness of shell plates *3/16"*diameter of rivet holes *5/16"*whether punched or drilled *Drilled*pitch of rivets *3"*lap of plating *4"*per centage of strength of joint *68%*thickness of crown plates *5/8"*stayed by *1 1/2" sq. in. bars*pitch *15" x 15"*description of joint *Lap Single*Diameter of furnace, top *2' 4"*bottom *2' 0"*length of furnace *3' 0"*thickness of plates *3/16"*description of joint *Lap Single*Thickness of furnace crown plates *1 1/2"*stayed by *1 1/2" sq. in. bars*pitch *8" x 8"*working pressure of shell by rules *80 lbs*thickness of plates *3/16"*thickness of water tubes *3/16"*Working pressure of furnace by rules *80 lbs*diameter of uptake *6" 6"*thickness of plates *3/16"*thickness of water tubes *3/16"*

## SPARE GEAR. State the articles supplied:—

*Top and bottom end connecting rod bolts & nuts two main bearing bolts & nuts one set of coupling bolts & nuts feed and bilge pump valves piston springs bolts nuts & iron assorted.*

The foregoing is a correct description.

North Eastern Marine Engineering Co. Ltd.

Manufacturers of Marine Engines &amp; Boilers

## General Remarks

(State quality of workmanship, opinions as to class, &amp;c.)

The main steam pipes have been tested by hydraulic pressure to 320 lbs. The machinery of the above mentioned vessel has been constructed under special survey the material and workmanship are good and efficient and the engines when tried under steam worked satisfactorily. In my opinion the machinery of the above vessel is in good order & safe working condition and eligible for the notification in the Register Book of L.M.C. 6-90 when the following work is done to the satisfaction of a surveyor to this Society viz. Bluces to fit on bulkheads, suction to connect to fore hold & after well and engine room. donkey boiler to be fitted with mountings and tried under steam

The above mentioned work has been satisfactorily completed.

*Wm. R. Austin**8th July 1890*The amount of Entry Fee .. £ *2* : .. received by me,Special .. £ *29* : *14* : ..

Donkey Boiler Fee .. £ ..

Certificate (if required) .. £ .. *12.7.1890*

To be sent as per margin.

(Travelling Expenses, if any, £ ..)

Committee's Minute

TUES 15 JULY 1890

*+ L.M.C. 6.90**Pat. Salmon*  
Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.Freight Certificate  
Written.Machinery Certificate  
Written.Lloyd's Register  
Foundation