

REPORT ON MACHINERY.

No. 495

No. in Survey held at Sunderland
Reg. Book.

Date, first Survey 31st Oct 1879 Last Survey June 4 1880

234 on the S. S. Hector

1534

Tons 1979

Master J. Lay

Built at Sunderland

When built 1863

Engines made at Sunderland

By whom made J. Dickinson when made 1879

Boilers made at do

By whom made do when made "

Registered Horse Power 200

Owners E. J. Gourley

Port belonging to Sunderland

ENGINES, &c.

Description of Engines Inverted Compound Surface Condensing

Diameter of Cylinders 33" x 62 Length of Stroke 42 No. of Rev. per minute 58 Point of Cut off, High Pressure 1/2 Low Pressure 1/2

Diameter of Screw shaft 1 1/4 Diameter of Tunnel shaft 10 3/4 Diameter of Crank shaft journals 10 3/4 Diameter of Crank pin 10 3/4 size of Crank webs 1 1/2 x 4 1/2

Diameter of screw 1 1/4" 8 Pitch of screw 16" 0 No. of blades 4 state whether moveable Not total surface 66 sq' ft.

No. of Feed pumps 2 diameter of ditto 4 1/4 Stroke 22 1/2" Can one be overhauled while the other is at work No

No. of Bilge pumps 2 diameter of ditto 4 1/4 Stroke 22 1/2" Can one be overhauled while the other is at work No

Where do they pump from Aft Bilge Pump. Sea. Tanks. & Bilges of all Comp^{ts} - Forward one Engine Room. Bilges only

No. of Donkey Engines Two Size of Pumps 8" x 10" & 5" x 8" Where do they pump from Ballast pump from Sea. Tank

Holds & Bilges of Engine Room. Feed tank from Aft Peak. Sea. & through 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 1 and size 6" Are they connected to condenser, or to circulating pump Circulating

How are the pumps worked by levers attached to crossheads of both Engines

Are all connections with the sea direct on the skin of the ship Yes Are they Valves or Cocks Stop Valves & Cocks

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 Main Tank & Hold suction pipes How are they protected Wood casing

Are all pipes, cocks, valves, and pumps in connection with the machinery accessible at all times Yes except in Main Tank & Hold

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 Nov^r 26th 1879

Is the screw shaft tunnel watertight Yes and fitted with a sluice door Yes worked from Top Engine Room Platform

BOILERS, &c.

Number of Boilers Two Description Cylindrical & Multitubular

Working Pressure 45 lbs per sq in Tested by hydraulic pressure to 150 lbs per sq in Date of test See Mr Stevens report. Feb'y 1880

Description of superheating apparatus or steam chest No Superheater or Steam Chest

Can each boiler be worked separately Yes Can the superheater be shut off and the boiler worked separately Yes

No. of square feet of fire grate surface in each boiler 44 sq' ft. Description of safety valves Spring Valves

No. to each boiler 2 area of each valve 1104 sq' in 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 2' 6"

Diameter of boilers 14' 9" Length of boilers 10' 6" description of riveting of shell long. seams Double Lap circum. seams Double Lap

Thickness of shell plates 1 1/2" diameter of rivet holes 1 1/4" whether punched or drilled drilled pitch of rivets 4" 5/8"

Lap of plating 11" per centage of strength of longitudinal joint Plate 1/3 Rivets 2/3 working pressure of shell by rules 79 lbs

Size of manholes in shell 16" x 11" size of compensating rings 7" x 1"

No. of Furnaces in each boiler 3 outside diameter 3' 1" length, top 7' 0" bottom 9' 9"

Thickness of plates Top 1/2" Bottom 9/16" description of joint Lap d. r. if rings are fitted No greatest length between rings —

Working pressure of furnace by the rules 86 lbs per sq in

Combustion chamber plating, thickness, sides 1/2" back 1/2" top 1/2"

Pitch of stays to ditto sides 9" x 9" back 9" x 9" top Circular 2' 6" Radius

If stays are fitted with nuts or riveted heads Nuts & Riveted heads working pressure of plating by rules 79 lbs per sq in

Diameter of stays at smallest part 1 1/8" working pressure of ditto by rules 78 lbs per sq in

End 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 89 lbs diameter of stays at smallest part 2" working pressure by rules 85 lbs

Front plates at bottom, thickness 3/4" Back plates, thickness 3/4" greatest pitch of stays 12" x 9" working pressure by rules 100 lbs

1RON493-0497

27199 \$

Diameter of tubes $3\frac{3}{4}$ " *Ext.* pitch of tubes $5" \times 5"$ thickness of tube plates, front $\frac{3}{4}$ " back $\frac{3}{4}$ "
 How stayed *Stay Tubes* pitch of stays $15" \times 10"$ width of water spaces $1\frac{1}{2}$ " between tubes
 Diameter of Superheater or Steam chest _____ length _____
 Thickness of plates _____ description of longitudinal joint _____ diameter 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 _____

DONKEY BOILER— Description *Circular Vertical*
 Made at *Newcastle* By whom made *C. C. & Gurney* when made *Tested 7/4/79*
 Where fixed *In Howard* working pressure *50 lbs per sq. in.* Tested by hydraulic pressure to *130 lbs* No. of Certificate *7th May 1880*
 Fire grate area *22 sq. ft.* Description of safety valves *Direct loaded* No. of safety valves *one* area of each *11.04 sq. ft.*
 If fitted with easing gear *Yes* If steam from main boilers can enter the donkey boiler *No*
 Diameter of donkey boiler *16" 0* length *15" 6* description of riveting *Long. d. lap Cir. Single lap*
 thickness of shell plates *1/2"* diameter of rivet holes *7/8"* whether punched or drilled *punched*
 pitch of rivets *3 1/4"* lap of plating *Long 4" Cir. 2 1/4"* per centage of strength of joint *73 of 100*
 thickness of crown plates *9/16"* stayed by *Rished to 5' 0 Radius & 6 stays with double nuts 1 1/2" dia. off*
 Diameter of furnace, top *4' 10"* bottom *5' 4 1/2"* length of furnace *6' 7 1/2"*
 thickness of plates *9/16"* description of joint *Lap Single riveted 15/16" rivets x 2 3/16" pitch*
 thickness of furnace crown plates *9/16"* stayed by *Rished to 5' 0 Radius & 6 stays with double nuts 1 1/2" dia. off*
 Working pressure of shell by rules *48 lbs* working pressure of furnace by rules *75 lbs.*
 diameter of uptake *1 1/4" 10 1/2"* thickness of plates *3/8"* thickness of water tubes *3/8"*

The foregoing is a correct description,

Manufacturer.

General Remarks (State quality of workmanship, opinions as to class, &c. *The whole of the old Engines*
Motors, shafting and all details were removed and the Engines
and Boilers which were recovered from the wreck of the S.S.
'Robert Dickinson' fitted on board. They have been tried under
steam and found satisfactory.
The above machinery is in good order and safe working
condition and in our opinion eligible for the Notification
Lloyd's M.C. in the Register Book.

It is submitted that the
vessel is eligible to
have the notification
N.B. 4379 & Lloyd's
Inc. 6. 80 recorded in
the Register Book
J.M.
7/6/80

The amount of Entry Fee £ *3* : : : received by me.
 Special .. £ *13* : *16* : - *Not a 21/1/80*
 Certificate (if required) .. £ : : : 18
 To be sent as per margin.
 (Travelling Expenses, if any, £ *1. 1. 0*)

Committee's Minute

Tuesday, June, 29th. 1880.

J. H. G. & P. K. Salmon
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

Lloyd's Register
Foundation