

REPORT ON MACHINERY

3168 (Falmouth)
MON. 29 APRIL 1889

No. 3168 (Falmouth)
No. in Survey held at *Hayle*
Reg. Book. *S. S. LYONNESSE*
on the *S. S. LYONNESSE*
Master *Hooper* Built at *Hayle* By whom built *Harvey & Co Ltd*
Engines made at *Hayle* By whom made *Harvey & Co Ltd*
Boilers made at *Liverpool* By whom made *D. B. & Sons*
Registered Horse Power *140* Owners *West Cornwall S. S. Company* Port belonging to *Penzance*

ENGINES, &c.—

Description of Engines *Vertical Inverted. Tri Compound Surface Condensing*
Diameter of Cylinders *22" x 32" x 52"* Length of Stroke *30"* No. of Rev. per minute *92* Point of Cut off, High Pressure *2/5* Low Pressure *6/5*
Diameter of Screw shaft *9 1/4"* Diam. of Tunnel shaft *8 1/8"* Diam. of Crank shaft journals *9 1/4"* Diam. of Crank pin *9 1/4"* size of Crank webs *6 3/4" x 12 3/4"*
Diameter of screw *9 ft* Pitch of screw *14 ft* No. of blades *4* state whether moveable *No* total surface *32 ft*
No. of Feed pumps *Two* diameter of ditto *3"* Stroke *14"* Can one be overhauled while the other is at work *Yes*
No. of Bilge pumps *Two* diameter of ditto *3"* Stroke *14"* Can one be overhauled while the other is at work *Yes*
Where do they pump from *Tunnel Well, Hold and Engine Room Bilges and Sea*
No. of Donkey Engines *One* Size of Pumps *5" ram 6" Stroke* Where do they pump from *Tunnel Well, Hold and Engine Room bilges, Hotwell, Condenser for circulating Sea and Ballast Tanks.*
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 *3/2"* Are they connected to condenser, or to circulating pump *To circulating pump.*
How are the pumps worked *By Beams and links from Off. Low Pressure Engine Crosshead*
Are all connections with the sea direct on the skin of the ship *Yes* Are they Valves or Cocks *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 *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 *28th January 1889*
Is the screw shaft tunnel watertight *Yes* and fitted with a sluice door *Yes* worked from *Overhead Platform. Eng^r Room*

BOILERS, &c.—

Number of Boilers *Two* Description *Cylindrical & Multitubular* Whether Steel or Iron *Steel*
Working Pressure *150 lb* Tested by hydraulic pressure to *300 lb* Date of test *13-12-88*
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 *54* Description of safety valves *lipped (spring)* No. to each boiler *Two*
Area of each valve *15.9 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 *4"* Diameter of boilers *18-6"*
Length of boilers *10-0* description of riveting of shell long. seams *Double butt strap* circum. seams *Lap double rivet* Thickness of shell plates *1 1/8"*
Diameter of rivet holes *1 1/4"* whether punched or drilled *Drilled* pitch of rivets *8 1/2" x 4 1/4"* Lap of plating *10 1/8" strap*
Percentage of strength of longitudinal joint *85* working pressure of shell by rules *153 lb* size of manholes in shell *16 x 12*
Size of compensating rings *6 x 1 3/8"* No. of Furnaces in each boiler *3*
Outside diameter *3-4 1/8"* length, top *6-0"* bottom *6-0"* thickness of plates *9/16"* description of joint *Welded* if rings are fitted *No*
Greatest length between rings *—* working pressure of furnace by the rules *175 lb* combustion chamber plating, thickness, sides *7/8"* back *7/8"* top *5/8"*
Pitch of stays to ditto, sides *9 1/2" x 8 1/2"* back *9 1/2" x 8"* top *10 1/2" x 8"* If stays are fitted with nuts or riveted heads *Nuts* working pressure of plating by rules *140 lb* Diameter of stays at smallest part *1 1/2"* working pressure of ditto by rules *175 lb* end plates in steam space, thickness *7/8"*
Pitch of stays to ditto *13 7/8" x 13 7/8"* how stays are secured *Nuts & rivets* working pressure by rules *165 lb* diameter of stays at smallest part *2 3/4"* working pressure by rules *233 lb* Front plates at bottom, thickness *13/16"* Back plates, thickness *13/16"*
Greatest pitch of stays *12 x 8"* working pressure by rules *140 lb* 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 *—* 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 *—*

FAL135-0025

DONKEY BOILER— Description *Not Fitted with*

Made at _____ by whom made _____ when made _____ where fixed _____

Working pressure _____ tested by hydraulic pressure to _____ No. of Certificate _____ fire grate area _____ description of safety valves _____ No. of safety valves _____ area of each _____ if fitted with easing gear _____ if steam from main boilers can 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 plating _____

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:— *Two connecting rod bolts and nuts, Two ditto for top end, Two main bearing bolts, One set of coupling bolts, One set feed and bilge pump valves, One set piston springs, A quantity of assorted bolts and nuts, iron of various sizes, One set Air & Circulating pump valves, Twelve boiler tubes, Twenty condenser tubes, Fifty ferrules for do, Two Escape Valve springs, Forty five fire bars, Twelve gauge glasses, One safety Valve spring*

The foregoing is a correct description,
Harvey & Co. Ltd. Manufacturer.
per H. H. Harvey

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

The main boilers have been constructed under special survey in Liverpool, the materials and workmanship were found good and efficient, and when tested with hydraulic pressure to 300 lbs per sq inch were found tight and satisfactory.

The Machinery has been built under Special Survey, and has been under my inspection from commencement to completion, during the progress of construction, Erection and Steam Trials.

I have every reason to believe the materials to be of the best quality. The workmanship is good throughout. The steam and feed pipes are made of the best solid drawn copper and have been tested in my presence to 400 lbs per sq inch, showing no appearance of weakness or bad workmanship. The safety valves have been set to lift at 152 lbs per sq in and work freely with no apparent accumulation, during 20 minutes full firing.

At the final Trial Trip 16.4.89. in, and from St. Joes Bay to Penzance the Engines worked well and efficiently, with but slight vibration and no heated bearings.

On the measured mile with steam at 152. Vacuum 26", Max Revs 98, Mean Revs 92.

The Engines work freely from Ahead to Astern and as required. The reversing Engine is the ordinary continuous all round motion, but fitted with a differential valve, to reverse itself if required. A reducing Valve is fitted and set to 65 lbs per sq in for the Auxiliary Engines of the vessel.

I am of opinion that the Machinery and Boilers are fit for Classification in the Society's Register and beg to submit for the Committee's Approval that a Machinery certificate be granted with the Notification of

+ L.M.C. 4.89. *in the Society's Register book from this date*

The amount of Entry Fee .. £ 2 : 0 : 0 received by me,

Special Fee .. £ 21 : 0 : 0 Entered 29.9.5

Donkey Boiler Fee .. £ - : - : -

Certificate (if required) .. £ 0 : 5 : 0 18th Dec 1889

To be sent as per margin.

(Travelling Expenses, if any, £ 6.4.5)

Committee's Minute **LIVERPOOL.**

TUES 7 MAY 1889

+ L.M.C. 4/89

It is submitted that this vessel is eligible to have L.M.C. 4.89 recorded

Geo. A. Milner
 Engineer Surveyors to Lloyd's Register of British & Foreign Shipping.
 Falmouth & Liverpool

Lloyd's Register Foundation