

REPORT ON MACHINERY.

Port of Falmouth

MON. 26 SEP 1899

Received at London Office

No. in Survey held at FalmouthDate, first Survey 25th Nov 1898 Last Survey 19th September 1899(Number of Visits 204)

Reg. Book. Supplement 2 on the Twin Screw Steamer "Penguin", Cox & Co late S. S. No. 69

Master Macintyre Built at Falmouth By whom built Cox & Co Tons { Gross 123.06
Net 52.86

Engines made at Falmouth By whom made Cox & Co when made 1899

Boilers made at Falmouth By whom made Cox & Co when made 1899

Registered Horse Power 36 Owners D. Currie & Co Port belonging to London

Nom. Horse Power as per Section 28 30.8 Is Electric Light fitted No.

ENGINES, &c.—Description of Engines Inverted Comp. Surface condensing No. of Cylinders 2 to each Engine
No. of Cranks 4

Diameter of Cylinders 10 1/2", 21" Length of Stroke 16" Revolutions per minute 155 Diameter of Screw shaft as per rule 4 1/8"
Diameter of Tunnel shaft as fitted 4 3/8" Diameter of Crank shaft journals 4 3/8" Diameter of Crank pin 4 3/8" Size of Crank webs 8 3/4" x 3 3/4"

Diameter of screw 5'-6" Pitch of screw 7'-6" No. of blades 3 State whether moveable No. Total surface 6.82 sq ft

No. of Feed pumps 2 Diameter of ditto 2" Stroke 8" Can one be overhauled while the other is at work ✓

No. of Bilge pumps 2 Diameter of ditto 2" Stroke 8" Can one be overhauled while the other is at work ✓

No. of Donkey Engines Two, 2 1/2" Sizes of Pumps 4" Rams, 5" Stroke No. and size of Suctions connected to both Bilge and Donkey pumps
In Engine Room Two, 2 1/2" In Holds, &c. 2, to Forehold 2 1/2", 1, 2 1/2" to after

Bilge

No. of bilge injections 1 sizes 4 1/4" Connected to condenser, or to circulating pump Pump Is a separate donkey suction fitted in Engine room & size Yes, 2 1/2"

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

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

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 and all boiler mountings accessible at all times Yes

Are the bilge suction pipes, cocks, and valves arranged so as to prevent any communication between the sea and the bilges Yes

When were stern tube, propeller, screw shaft, and all connections examined in dry dock 4/8/99. on Is the screw shaft tunnel watertight none

Is it fitted with a watertight door ✓ worked from ✓

BOILERS, &c.— (Letter for record 0) Total Heating Surface of Boilers 772 sq ft Is forced draft fitted No.

No. and Description of Boilers One, cylindrical multitubular Working Pressure 120 lbs Tested by hydraulic pressure to 240 lbs

Date of test 2/5/99 Can each boiler be worked separately ✓ Area of fire grate in each boiler 31.6 No. and Description of safety valves to each boiler Two, Coaxial Lipped Spring Area of each valve 7.068 sq in Pressure to which they are adjusted 125 lbs Are they fitted with easing gear Yes Smallest distance between boilers or uptakes and bunkers or woodwork 6" Mean diameter of boilers 9'-9"

Length 8'-9" Material of shell plates Steel Thickness 2 1/2" Description of riveting: circum. seams double zigzag lap seams double butt
Diameter of rivet holes in long. seams 13/16" Pitch of rivets 4 3/8" Lap of plates or width of butt straps 8 3/4"

Per centages of strength of longitudinal joint 81.5 Working pressure of shell by rules 123.3 lbs Size of manhole in shell 16" x 12"

Size of compensating ring 26" x 22" flange No. and Description of Furnaces in each boiler 2, Morrison's Material Steel Outside diameter 3'-1"

Length of plain part 6'-0" Thickness of plates 3/8" Description of longitudinal joint welded No. of strengthening rings ✓

Working pressure of furnace by the rules 136.1 Combustion chamber plates: Material Steel Thickness: Sides 1/2" Back 1/2" Top 1 1/2" Bottom 1/2"

Pitch of stays to ditto: Sides 7 7/8" Back 7 7/8" Top 11 1/2" x 7 7/8" If stays are fitted with nuts or riveted heads Nuts Working pressure by rules 124

Material of stays Steel Diameter at smallest part 1 1/2" Area supported by each stay 62 sq in Working pressure by rules 127.6 End plates in steam space: Material Steel Thickness 3/4" Pitch of stays 12.5" How are stays secured Secured in plates and riveted outside Working pressure by rules 124.5 Material of stays Iron

Diameter at smallest part 1 1/4" Area supported by each stay 156.2 Working pressure by rules 126.8 Material of Front plates at bottom Steel

Thickness 5/8" Material of Lower back plate Steel Thickness 5/8" Greatest pitch of stays 11.625 Working pressure of plate by rules 123 lbs

Diameter of tubes 3" Pitch of tubes 4 1/4" vertical Material of tube plates Steel Thickness: Front 3/4" Back 1 1/16" Mean pitch of stays 11.25"

Pitch across wide water spaces 13.25" Working pressures by rules 134 lbs Girders to Chamber tops: Material Steel Depth and thickness of girder at centre 6 7/8" x 1 1/2" Length as per rule 21.8 Distance apart 11" Number and pitch of Stays in each 2, 7 7/8"

Working pressure by rules 123.8 Superheater or Steam chest; how connected to boiler ✓ Can the superheater be shut off and the boiler worked separately ✓

Diameter ✓ Length ✓ Thickness of shell plates ✓ Material ✓ Description of longitudinal joint ✓ Diam. of rivet holes ✓ Pitch of rivets ✓ Working pressure of shell by rules ✓ Diameter of flue ✓ Material of flue plates ✓ Thickness ✓

If stiffened with rings ✓ Distance between rings ✓ Working pressure by rules ✓ End plates: Thickness ✓ How stayed ✓

Working pressure of end plates ✓ Area of safety valves to superheater ✓ Are they fitted with easing gear ✓

DONKEY BOILER— Description *None Fitted,*

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 _____ Pressure to which they are adjusted _____ If fitted with easing gear _____ If steam from main boilers can enter the donkey boiler _____

Description of riveting long. seams _____ Diameter of donkey boiler _____ Length _____ Material of shell plates _____ Thickness _____

Lap of plating _____ Per centage of strength of joint _____ Rivets _____ Thickness of shell crown plates _____ Radius of do. _____ No. of Stays to do. _____

Dia. of stays _____ Diameter of furnace Top _____ Bottom _____ Length of furnace _____ Thickness of furnace 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 uptake plates _____ Thickness of water tubes _____

SPARE GEAR. State the articles supplied:— *Two Connecting Rod Top, and Two Bottom end Bolts and Nuts, Two Main Bearing Bolts, One set of Coupling Bolts, One set of Bilge, and one set of Feed Pump Valves, A Quantity of assorted Bolts and Nuts, Iron of various sizes, One set of Valves for each Air Pump, one set of Connecting Rod Top, and Bottom Bolts, Two Propellers,*

The foregoing is a correct description,
Lox & Co. Manufacturer.

Dates of Survey while building

During progress of work in shops—	From 25 th November 1898 to 7 th July 1899
During erection on board vessel—	From the 7 th July to 19 th September 1899 almost daily
Total No. of visits	204

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

ENGINES—Length of stern bush *24"* Diameter of crank shaft journals *as per rule 4' 2 7/8"* Diameter of thrust shaft under collars *4 3/8"*

BOILERS—Range of tensile strength *28 to 32* Are they welded or flanged *No* **DONKEY BOILERS**—No. ☒ Range of tensile strength ☒

Is the approved plan of main boiler forwarded herewith *Yes* Is the approved plan of donkey boiler forwarded herewith ☒

The Machinery has been made and fitted under Special Survey and under my inspection from commencement to completion. I have every reason to believe the materials to be of the very best quality. The workmanship is good throughout. The Feed and Steam Pipes are made of solid drawn copper and have been tested in my presence to 240 lbs per inch showing no appearance of weakness or bad work. The Main Boiler has been constructed under Special Survey and the materials and workmanship are good, being tested to 240 lbs per inch, and was found perfectly tight and satisfactory. The Safety Valves are set at 12.5 lbs pressure lifting freely with no appearance of accumulation. This vessel was fitted with Edward Patent Air Pumps 7 1/2" diameter for each engine, and the pumps were connected by one suction pipe to the condenser, on the trial it was impossible to get more than 26" vacuum, and when working the engines slowly the leakage reduced the vac so rapidly it was found impossible to move the engines smartly, new liners, new Port Valves, and new Buckets have now been fitted which has made the engines perfectly handy at any speed. At the trial the engines worked well and efficiently with no signs of overheating. Bearings, Steam 120 lbs, vac 24 1/2, Rev 155, I. H. P. 240. All the Auxiliary Machinery appears good and efficient. Every thing being fitted in accordance with the Rules and Instructions, I am of opinion that the Machinery is fit for Classification in the Society's Register Book, and beg to Recommend for the Committee's approval that a Machinery Certificate be granted and the notation of **+LMC 9-99** made in the Register Book.

The amount of Entry Fee... £ 1 : 0 :
Special... £ 8 : 0 :
Donkey Boiler Fee... £ : :
Travelling Expenses (if any) £ : :
When applied for, 23-9-18-99
When received, 23-9-18-99

It is submitted that this vessel is eligible for **THE RECORD** + **LMC 9-99**
P. H. Cooper
Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

Committee's Minute

Assigned

TUES 26 SEP 1899

MACHINERY CERTIFICATE WRITTEN.

+ LMC 9.99



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