

# REPORT ON MACHINERY.

Mo. No. 33799.  
Mdb No. 1899

THUR, 15 OCT 1896

Port of Newcastle

Received at London Office 18

No. in Survey held at Newcastle  
Reg. Book.

Date, first Survey 8<sup>th</sup> May 1896 Last Survey 1<sup>st</sup> Aug 1896  
(Number of Vessels 1)

on the Steel Screw Steamer OCCARNO

Master A. J. Fowler Built at Middlesbrough By whom built Dr. R. Dixon & Co. When built 1896

Engines made at Newcastle By whom made North Eastern Marine Engineering Co. when made 1896

Boilers made at Newcastle By whom made North Eastern Marine Engineering Co. when made 1896

Registered Horse Power 250 Owners Plate & S. L. Bellamy, Nanke, Swell & Co. Port belonging to Rochester

Nom. Horse Power as per Section 28 246

ENGINES, &c.— Description of Engines Triple Expansion Direct acting No. of Cylinders Three

Diameter of Cylinders 23-36-59 Length of Stroke 42 Revolutions per minute as per rule 11.34  
Diameter of Tunnel shaft as per rule 10.77 Diameter of Crank shaft journals 11 1/2 Diameter of Crank pin 11 1/2 Size of Crank webs 22 x 4 1/2

Diameter of screw 15-6 Pitch of screw 15-6 No. of blades 4 State whether moveable no Total surface 75 sq ft

No. of Feed pumps Two Diameter of ditto 3 1/4 Stroke 21 Can one be overhauled while the other is at work yes

No. of Bilge pumps Two Diameter of ditto 3 1/4 Stroke 21 Can one be overhauled while the other is at work yes

No. of Donkey Engines Two Sizes of Pumps 9" x 9" stroke No. and size of Suctions connected to both Bilge and Donkey pumps 4 x 6

In Engine Room Two 3" rings, one 3 1/2" Centre In Holds, &c. Forehold 3" rings, Main Hold 3" rings

No. of bilge injections 1 sizes 4 Connected to condenser, or to circulating pump pump Is a separate donkey suction fitted in Engine room & size yes 3 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 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 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 New Vessel Is the screw shaft tunnel watertight yes

Is it fitted with a watertight door Yes worked from Top platform in engine room

BOILERS, &c.— (Letter for record (5) with run Total Heating Surface of Boilers 3064 (with condensers fired brass)

No. and Description of Boilers Two single ended return tube Working Pressure 180 lb Tested by hydraulic pressure to 360 lb

Date of test 30/6/96 Can each boiler be worked separately yes Area of fire grate in each boiler 35 1/2 sq ft No. and Description of safety valves to each boiler Two, Direct spring Area of each valve 7.04 sq in Pressure to which they are adjusted 180 lbs Are they fitted with easing gear yes

Smallest distance between boilers or uptakes and bunkers or woodwork 24" Mean diameter of boilers 12-3 3/8

Length 11-5 Material of shell plates steel Thickness 1 1/2 Description of riveting: circum. seams Lap OK long. seams D.B.S. Triple

Diameter of rivet holes in long. seams 1 1/2 Pitch of rivets 8 3/4 Lap of plates or width of butt straps straps 18"

Per centages of strength of longitudinal joint 81.36 Working pressure of shell by rules 192.8 lb Size of manhole in shell End 16 x 12

Size of compensating ring flanged No. and Description of Furnaces in each boiler Two, Imperson Material steel Outside diameter 44 1/2

Length of plain part top 2-9 Thickness of plates crown 3 9/16 Description of longitudinal joint welded No. of strengthening rings none

Working pressure of furnace by the rules 188 lb Combustion chamber plates: Material steel Thickness: Sides 19/32 Back 19/32 Top 19/32 Bottom 19/32

Pitch of stays to ditto: Sides 7 1/8 x 8 Back 7 1/8 x 8 Top 7 1/8 x 8 If stays are fitted with nuts or riveted heads nuts Working pressure by rules 191 lb

Material of stays steel Diameter at smallest part 1 3/8 Area supported by each stay 61 sq in Working pressure by rules 197 lb End plates in steam space:

Material steel Thickness 1 1/8 Pitch of stays 16 x 15 1/4 How are stays secured DRUM Working pressure by rules 234 lb Material of stays steel

Diameter at smallest part 2 1/4 Area supported by each stay 252 sq in Working pressure by rules 180 lb Material of Front plates at bottom steel

Thickness 3/8 Material of Lower back plate steel Thickness 3/4 Greatest pitch of stays 13 1/4 Working pressure of plate by rules 197 lb

Diameter of tubes 2 1/2 Pitch of tubes 4 x 3 3/4 Material of tube plates steel Thickness: Front 3/8 Back 3/4 Mean pitch of stays 7 1/4

Pitch across wide water spaces 14 1/2 Working pressures by rules 392 lb Girders to Chamber tops: Material steel Depth and thickness of girder at centre 7 3/4 x 1 1/2 Length as per rule 28 1/2 Distance apart 7 7/8 Number and pitch of Stays in each Two 8"

Working pressure by rules 196 lb 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 *Cylindrical built with 2 plain furnaces.*  
Made at *Stockton* By whom made *J. Harrison & Co. Ltd.* When made *16/9/96* Where fixed *on Deck*  
Working pressure *80 lbs* tested by hydraulic pressure to *160 lbs* No. of Certificate *1348* Fire grate area *22 sq ft* Description of safety valves *Direct Spring*  
No. of safety valves *2* Area of each *406"* Pressure to which they are adjusted *85 lbs* If fitted with easing gear *Yes*. If steam from main boilers enter the donkey boiler *No*. Diameter of donkey boiler *8'6"* Length *9'0"* Material of shell plates *Steel* Thickness *1 1/2"*  
Description of riveting long. seams *Lap - Quadruple* Diameter of rivet holes *3/16"* Whether punched or drilled *Drilled* Pitch of rivets *1 1/2"*  
Lap of plating *6'8"* Per centage of strength of joint Rivets *88* Thickness of shell *top end* plates *3/16"* Radius of do *pitch* No. of Stays to do *18"*  
Dia. of stays *1 3/4"* Diameter of furnace *Top 30"* Bottom *24"* Length of furnace *5'6"* Thickness of furnace plates *3/16"* Description of joint *Welded* Thickness of *fire* plates *1/2"* Stayed by *1 1/2"* *iron stays* Working pressure of shell by rules *80*  
Working pressure of furnace by rules *104 lbs* Diameter of *water* tubes *3"* Thickness of *water* plates *5/8"* Thickness of *water* tubes *5/16"*

SPARE GEAR. State the articles supplied:— *Propeller, 1 crank, 1 Propeller shaft, 1 Air pump & 1 pair crank pin brasses, 1 pair cross head brasses, 1 set back air circulating pump valves, 15 condenser tubes, 15 Boiler tubes, and the usual spare gear required by the Rules.*

The foregoing is a correct description,  
FOR AND ON BEHALF OF THE NORTH EASTERN  
MARINE-ENGINEERING COMPANY, LIMITED.

Manufacturers

*Samuel Harrison*

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

Dates of Survey while building  
During progress of work in shops - -  
During erection on board vessel - -  
Total No. of visits

-1896- May 2, 14, 19, 21, 28, June 2, 11, 30, July 10, 16, 27, 29, Aug 6, 10, 11, 18, Oct 1, 5

*Eighteen*

The Engines & Boilers of this vessel have been built under special survey the material & workmanship sound & good. The Boilers & pipes were tested by hydraulic pressure in accordance with the Rules. The safety valves were adjusted under steam to the working pressure. The machinery worked satisfactorily rendering this vessel eligible in our opinion to have the notation *\* LMC 10, 96* in the Register Book.

It is submitted that  
this vessel is eligible for  
THE RECORD + *L.M.C. 10. 96* F.D.

*J.S.*  
*15.10.96.*

Certificate (if required) to be sent to *Middlesbrough*

The amount of Entry Fee.. £ *20* :  
Special .. .. £ *32* : *6*  
Donkey Boiler Fee .. .. £ :  
Travelling Expenses (if any) £ :

When applied for,

*4. 9. 1896*

When received,

*29.10.96*

MACHINERY CERTIFICATE

WRITTEN.

*Wm. L. Hindmarsh & Wm. Austin*  
Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

Committee's Minute

FRI, 16 OCT 1896

Assigned

*+ L.M.C. 10, 96 F.D.*



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Foundation