

# REPORT ON MACHINERY.

No. 22617

Port of Sunderland

Received at London Office 21. 17 FEB 1906

No. in Survey held at Sunderland Date, first Survey 27<sup>th</sup> April 1905 Last Survey 1<sup>st</sup> February 1906

Reg. Book. on the Steel Screw Steamer "Royal Crown" ATHENIC (Number of Visits 35)

Master E. R. Peck Built at Sunderland By whom built Sunderland S. B. Co., Ltd. When built 1906

Engines made at Sunderland By whom made N.E. Marrie Eng<sup>r</sup> Co., Ltd. when made 1906

Boilers made at Sunderland By whom made N.E. Marrie Eng<sup>r</sup> Co., Ltd. when made 1906

Registered Horse Power 352 Owners W. H. Cockerline & Co. Port belonging to Hull

Nom. Horse Power as per Section 28 352 Is Refrigerating Machinery fitted for cargo purposes no Is Electric Light fitted no

**ENGINES, &c.**—Description of Engines Triple Expansion, Inverted No. of Cylinders Three No. of Cranks Three

Dia. of Cylinders 26-42-40 Length of Stroke 45 Revs. per minute 61½ Dia. of Screw shaft as per rule 15½ Material of screw shaft iron

Is the screw shaft fitted with a continuous liner the whole length of the stern tube no Is the after end of the liner made water tight in the propeller boss yes If the liner is in more than one length are the joints burned — If the liner does not fit tightly at the part between the bearings in the stern tube, is the space charged with a plastic material insoluble in water and non-corrosive — If two liners are fitted, is the shaft lapped or protected between the liners — Length of stern bush 5-1

Dia. of Tunnel shaft as per rule 12.69 Dia. of Crank shaft journals as per rule 13.33 Dia. of Crank pin 13.3 Size of Crank webs 20x8½ Dia. of thrust shaft under collars 14 Dia. of screw 14-9 Pitch of screw 14-6 No. of blades four State whether moveable no Total surface 98 ft

No. of Feed pumps Two Diameter of ditto 3½ Stroke 24 Can one be overhauled while the other is at work yes

No. of Bilge pumps Two Diameter of ditto 4 Stroke 24 Can one be overhauled while the other is at work yes

No. of Donkey Engines Two Sizes of Pumps 4½ x 9½ x 10½ - 4½ x 4½ x 4½ No. and size of Suctions connected to both Bilge and Donkey pumps In Engine Room four 3½ In Holds, &c. forward hold two 3½ dia, after hold two 3½ dia, aftermost hold one 3½ dia + 3½ tonned mill, two deep tank 3½ dia

No. of bilge injections one sizes 5 Connected to condenser, or to circulating pump no Is a separate donkey suction fitted in Engine room & size yes 3½

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 none

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 main hold, reserve bunker How are they protected wood casing

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 on the ways Is the screw shaft tunnel watertight yes

Is it fitted with a watertight door yes worked from top platform

**BOILERS, &c.**— (Letter for record S) Total Heating Surface of Boilers 5391 ft Is forced draft fitted no

No. and Description of Boilers Three, single ended cyl<sup>r</sup> mult<sup>r</sup> Working Pressure 180 lb Tested by hydraulic pressure to 360 lb

Date of test 16/10/05 Can each boiler be worked separately yes Area of fire grate in each boiler 50.5 ft No. and Description of safety valves to each boiler Two, direct opening Area of each valve 5.94 Pressure to which they are adjusted 180 lb Are they fitted with easing gear yes

Smallest distance between boilers or uptakes and bunkers or woodwork 19 (Rule Mean dia. of boilers 13-6½ Length 10-9 Material of shell plates steel

Thickness 1½ Range of tensile strength 29.5 Are they welded or flanged no Descrip. of riveting: cir. seams Lap DR. long. seams 5725-TR

Diameter of rivet holes in long. seams 1½ Pitch of rivets 9½ Lap of plates or width of butt straps 19

Per centages of strength of longitudinal joint rivets 88.8 Working pressure of shell by rules 180 lb Size of manhole in shell 16x12 plate 86.7

Size of compensating ring 7x1½ No. and Description of Furnaces in each boiler Three, Morrison Material steel Outside diameter 4½ dia

Length of plain part top Thickness of plates bottom 1 Description of longitudinal joint weld No. of strengthening rings —

Working pressure of furnace by the rules 182 lb Combustion chamber plates: Material steel Thickness: Sides ¾ Back ¾ Top ¾ Bottom 1½

Pitch of stays to ditto: Sides 11½ x 9½ Back 9½ x 11 Top 9½ x 11½ If stays are fitted with nuts or riveted heads no Working pressure by rules 184 lb

Material of stays steel Diameter at smallest part 1.63-1.88 Area supported by each stay 1.05 Working pressure by rules 181 lb End plates in steam space: Material steel Thickness 1½ Pitch of stays 20x18½ How are stays secured by nuts + washers Working pressure by rules 181 lb Material of stays steel

Diameter at smallest part 3.07 Area supported by each stay 3.67 Working pressure by rules 197 lb Material of Front plates at bottom steel

Thickness ¾ Material of Lower back plate steel Thickness 1½ Greatest pitch of stays 14½ x 11 Working pressure of plate by rules 181.4 lb

Diameter of tubes 3½ Pitch of tubes 4½ x 4½ Material of tube plates steel Thickness: Front ¾ Back ¾ Mean pitch of stays 14½ x 8½

Pitch across wide water spaces 14½ Working pressures by rules 184.9 lb Girders to Chamber tops: Material steel Depth and thickness of girder at centre 8½ x 2 Length as per rule 29.2 Distance apart 11½ Number and pitch of Stays in each Two 9½

Working pressure by rules 199 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 —

If not, state whether, and when, one will be sent? In a Report also sent on the Hull of the Ship

[2000-604-Copyable Ink.]

REMAIN

Lloyd's Register Foundation

W478-0113

**DONKEY BOILER**— No. *one* Description *please see Report attached N° 49649*

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 \_\_\_\_\_

enter the donkey boiler \_\_\_\_\_ Dia. of donkey boiler \_\_\_\_\_ Length \_\_\_\_\_ Material of shell plates \_\_\_\_\_ Thickness \_\_\_\_\_ Range of tens. strength \_\_\_\_\_

Descrip. of riveting long. seams \_\_\_\_\_ Dia. of rivet holes \_\_\_\_\_ Whether punched or drilled \_\_\_\_\_ Pitch of rivets \_\_\_\_\_

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 \_\_\_\_\_

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 top end bolts & nuts, 2 Bottom end bolts & nuts, Two Main bearing bolts & nuts, one set of pumping bolts & nuts, one set of feed pump valves, one set of bilge pump valves, one 1/2 crank shaft, propeller & propeller shaft, H.P. rambottom rings, assorted iron etc.*

The foregoing is a correct description,  
**NORTH EASTERN MARINE ENGINEERING CO. LTD.**  
*Walter R. ...* Manufacturer.

Dates of Survey while building

During progress of work in shops - - -	} 1905: Apr. 27, May 18, 30, June 5, 10, 14, Aug. 11, 15, 17, 21, 23, 28, Sept. 7, 8, 14, 27, 29, Oct. 2, 5
Total No. of visits	35

Is the approved plan of main boiler forwarded herewith *yes*  
 " " " donkey " " " *yes*

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

*The Machinery of this Vessel has been constructed under special Survey, the Material & workmanship sound & good, the Boilers & steam pipes have been tested by hydraulic pressure to double the working pressure, the Machinery worked satisfactorily at the moorings & the safety valves have been adjusted to their working pressure & easing gear has been fitted—*

*This Vessel is eligible in my opinion to have the Notation **L.M.C. 2.06** in the Register Book—*

It is submitted that this vessel is eligible for **THE RECORD L.M.C. 2.06.**

*W. R. ...*  
 17.2.06

The amount of Entry Fee... £ 3: : When applied for, 31.1.1906  
 Special .. .. £ 37: 12 : :  
 Donkey Boiler Fee .. .. £ : : :  
 Travelling Expenses (if any) £ : : : When received, 5.2.06

*W. R. ...*  
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

Committee's Minute **TUES. 20 FEB 1906**  
 Assigned *+ L.M.C. 2.06*



MACHINERY CERTIFICATE WRITTEN.

Builder's Signature (here only) *Walter R. ...*

FLAT F (If Built) GARBC State thick way of Be

Write in Blue Ink (If possible) in corresponding letter.

Jumburund.

Certificate (if required) to be sent to the Surveyors are requested not to write on or below the space for Committee's Minute.