

## REPORT ON MACHINERY.

No. 22617

Port of SunderlandReceived at London Office 21. 17 FEB 1906No. in Survey held at Sunderland  
Reg. Book.Date, first Survey 27<sup>th</sup> April 1905 Last Survey 1<sup>st</sup> February 1906on the Steel Screw Steamer "Royal Crown" ATHENIC(Number of Visits 35)Gross 4077.51Net 2628.28Master E. R. Peck Built at SunderlandBy whom built Sunderland S.B. Co., Ltd.When built 1906Engines made at SunderlandBy whom made N.E. Marnie Eng' Co., Ltd.when made 1906Boilers made at SunderlandBy whom made N.E. Marnie Eng' Co., Ltd.when made 1906

Registered Horse Power

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, &amp;c.—Description of Engines

Triple Expansion, Inverted

No. of Cylinders

Three

No. of Cranks

Three

Dia. of Cylinders

26-42-70

Length of Stroke

45

Revs. per minute

61½

Dia. of Screw shaft

as per rule 15½

Material of

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

13½

Size of Crank webs

20x8½

Dia. of thrust shaft under

collars 14

Dia. of screw

14-9

Pitch of screw

14-6No. of blades four

State whether moveable

no

Total surface

98½

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

¼x9½x10½ - ¼x4½x4½

No. and size of Suctions connected to both Bilge and Donkey pumps

In Engine Room

four3½

In Holds, &amp;c.

forward Hold Two 3½ dia, after holdTwo 3½ dia, aftermost hold one 3½ dia + 3½ tonned with, Two deep tank 3½ dia

No. of bilge injections

one

size

5

Connected to condenser, or to circulating pump

pump

Is a separate donkey suction fitted in Engine room &amp; size

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

from hold, recessed 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, &amp;c.—

(Letter for record S)

Total Heating Surface of Boilers

5391

Is forced draft fitted

no

No. and Description of Boilers

Three, single ended cyl<sup>d</sup> mult<sup>l</sup>

Working Pressure

180 lb

Tested by hydraulic pressure to

360 lbDate of test 16/10/05

Can each boiler be worked separately

yes

Area of fire grate in each boiler

50.5

No. and Description of safety valves to

each boilerTwo, direct spring

Area of each valve

5.94

Pressure to which they are adjusted

180 lb

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

29½

Are they welded or flanged

no

Descrip. of riveting: cir. seams

Lap & R. long. seams5725-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

88.8

Working pressure of shell by rules

180 lb

Size of manhole in shell

16x12

Size of compensating ring

7x1½

No. and Description of Furnaces in each boiler

Three, Morrison

Material

steel

Outside diameter

41½ dia

Length of plain part

top

Thickness of plates

bottom

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

11½x9½

Back

9½x11

Top

9½x11½

If stays are fitted with nuts or riveted heads

no

Working pressure by rules

184 lb

Material of stays

steel

Diameter at smallest part

1.65-1.88

Area supported by each stay

0.5

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

3.04

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

14½x11

Working pressure of plate by rules

181 lb

Material of stays

steel

Diameter of tubes

3½

Pitch of tubes

4½x4½

Material of tube plates

steel

Thickness: Front

¾

Back

¾

Mean pitch of stays

14x8½

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

8½x2

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

—

Pitch of rivets

—

Working pressure of shell by rules

—

Diameter of flue

—

Material of flue plates



DONKEY BOILER— No. one Description *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. ramblottin rings, assorted run etc.*

The foregoing is a correct description,

*NORTH EASTERN MARINE ENGINEERING CO. LTD.* Manufacturer.

Dates of Survey { 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, 3

while building { During erection on board vessel - 6, 10, 11, 12, 16, 19, Nov. 29, Dec. 4, 6, 13, 14, 18, 22 - 06 - Jan. 18, Feb. 1.

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—*