

# REPORT ON MACHINERY.

No. 19398

Port of Hull

Received at London Office MON. 16 SEP 1907

No. in Survey held at Hull

Date, first Survey

Last Survey

19

Reg. Book.

on the Steel Ss K Lord Roberts

(Number of Visits)

Master Hull

By whom built Earles & Co Ltd

Tons } Gross

When built 1907

Engines made at Hull

By whom made Earles & Co Ltd

when made 1907

Boilers made at Hull

By whom made Earles & Co Ltd

when made 1907

Registered Horse Power

Owners

Port belonging to Hull

Nom. Horse Power as per Section 28 86.5

Is Refrigerating Machinery fitted for cargo purposes No

Is Electric Light fitted No

## ENGINES, &c.—Description of Engines

Triple Expansion

No. of Cylinders 3

No. of Cranks 3

Dia. of Cylinders 13" - 22 1/2" - 37"

Length of Stroke 24"

Revs. per minute 118

Dia. of Screw shaft as per rule 7.5"

Material of screw shaft Iron

Is the screw shaft fitted with a continuous liner the whole length of the stern tube Yes

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 one length

If the liner does not fit tightly at the part

between the bearings in the stern tube, is the space changed 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 2'-10 1/2"

Dia. of Tunnel shaft as per rule 6.82"

Dia. of Crank shaft journals as per rule 7.16"

Dia. of Crank pin 7 1/2"

Size of Crank webs 14" x 4 1/2"

Dia. of thrust shaft under collars

as fitted 7 1/2"

Dia. of screw 9'-0"

Pitch of Screw 11'-0" to 12'-0"

No. of Blades 4

State whether movable No

Total surface 27 sq ft

No. of Feed pumps 1

Diameter of ditto 3"

Stroke 12"

Can one be overhauled while the other is at work

No. of Bilge pumps 1

Diameter of ditto 3"

Stroke 12"

Can one be overhauled while the other is at work

No. of Donkey Engines Two

Sizes of Pumps 5" Centrifugal

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

In Engine Room One 3", and one 2"

In Holds, &c. One 2" to each, the slush

well, fish room, and fore compartment

No. of Bilge Injections 1

sizes 3 1/2"

Connected to condenser, or to circulating pump Yes

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 0

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 Hold suction

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

Dates of examination of completion of fitting of Sea Connections 21-8-07

of Stern Tube 24-7-07

Screw shaft and Propeller 21-8-07

24-7-07

Is the Screw Shaft Tunnel watertight None

Is it fitted with a watertight door worked from

BOILERS, &c.—(Letter for record 5)

Manufacturers of Steel Beardmore & Co

Total Heating Surface of Boilers 1463 sq ft

Is Forced Draft fitted No

No. and Description of Boilers One Cyl. Multi

Working Pressure 200 lbs

Tested by hydraulic pressure to 400 lbs

Date of test 30-7-07

No. of Certificate 1578

Can each boiler be worked separately

Area of fire grate in each boiler 41 sq ft

No. and Description of Safety Valves to each boiler Two Spring

Area of each valve 49 sq in

Pressure to which they are adjusted 205 lbs

Are they fitted with easing gear Yes

Smallest distance between boilers or uptakes and bunkers or woodwork 5 1/2"

Mean dia. of boilers 13'-3 5/8"

Length 10'-3"

Material of shell plates Steel

Thickness 1 3/16"

Range of tensile strength 28-32 tons

Are the shell plates welded or flanged No

Descrip. of riveting: cir. seams L.D.

long. seams O.B.S.V.R.

Diameter of rivet holes in long. seams 1 1/4"

Pitch of rivets 8 7/8"

Lap of plates or width of butt straps 18 1/2"

Per centages of strength of longitudinal joint rivets 88.4

plate 85.6

Working pressure of shell by rules 200 lbs

Size of manhole in shell 16" x 12"

Size of compensating ring 4'-0" x 3'-0" x 1 3/8"

No. and Description of Furnaces in each boiler 3 plain

Material Steel

Outside diameter 3'-2"

Length of plain part top 6'-4"

bottom 6'-4"

Thickness of plates crown 1 1/2"

bottom 1 1/4"

Description of longitudinal joint Welded

No. of strengthening rings 0

Working pressure of furnace by the rules 201 lbs

Combustion chamber plates: Material Steel

Thickness: Sides 3 1/2"

Back 3 1/2"

Top 5 7/8"

Bottom 3 1/2"

Pitch of stays to ditto: Sides 9 1/2" x 8"

Back 10" x 8 1/2"

Top 7 1/2" x 8 1/2"

If stays are fitted with nuts or riveted heads Nuts

Working pressure by rules 207 lbs

Material of stays Steel

Diameter at smallest part 1 3/4"

Area supported by each stay 102 sq in

Working pressure by rules 211 lbs

End plates in steam space: Material Steel

Thickness 1 3/8"

Pitch of stays 18" x 17"

How are stays secured double nuts

Working pressure by rules 206 lbs

Material of Front plates at bottom Steel

Diameter at smallest part 2 1/16"

Area supported by each stay 306 sq in

Working pressure by rules 211 lbs

Material of Lower back plate Steel

Thickness 1 5/16"

Greatest pitch of stays 14" x 8 1/2"

Working pressure of plate by rules 226 lbs

Diameter of tubes 3 1/4"

Pitch of tubes 4 1/2" x 4 1/2"

Material of tube plates Steel

Thickness: Front 3 1/2"

Back 2 3/4"

Mean pitch of stays 9 5/8"

Pitch across wide water spaces 14"

Working pressures by rules 208 lbs

Girders to Chamber tops: Material Steel

Depth and thickness of girder at centre 9 1/2" x 1 1/4"

Length as per rule 2'-9 1/2"

Distance apart 8 1/2"

Number and pitch of stays in each Three 7 1/2"

Working pressure by rules 227 lbs

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

Lloyd's Register Foundation

**VERTICAL DONKEY BOILER—** Manufacturers of Steel

No. \_\_\_\_\_ Description \_\_\_\_\_

Made at \_\_\_\_\_ By whom made \_\_\_\_\_ When made \_\_\_\_\_ Where fixed \_\_\_\_\_

Working pressure tested by hydraulic pressure to \_\_\_\_\_ Date of test \_\_\_\_\_ No. of Certificate \_\_\_\_\_ Fire grate area \_\_\_\_\_ Description of Safety \_\_\_\_\_

Valves \_\_\_\_\_ No. of Safety Valves \_\_\_\_\_ Area of each \_\_\_\_\_ Pressure to which they are adjusted \_\_\_\_\_ Date of adjustment \_\_\_\_\_

If fitted with easing gear \_\_\_\_\_ If steam from main boilers can enter the donkey boiler \_\_\_\_\_ Dia. of donkey boiler \_\_\_\_\_ Length \_\_\_\_\_

Material of shell plates \_\_\_\_\_ Thickness \_\_\_\_\_ Range of tensile 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 \_\_\_\_\_ Plates \_\_\_\_\_

Working pressure of shell by rules \_\_\_\_\_ 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 \_\_\_\_\_

Working pressure of furnace by rules \_\_\_\_\_ Thickness of furnace crown plates \_\_\_\_\_ Stayed by \_\_\_\_\_

Diameter of uptake \_\_\_\_\_ Thickness of uptake plates \_\_\_\_\_ Thickness of water tubes \_\_\_\_\_ Dates of survey \_\_\_\_\_

**SPARE GEAR.** State the articles supplied: *Two each top and bottom end connecting rod bolts and nuts, two main bearing bolts and nuts, one set coupling bolts, and nuts, one set each, air, feed and bilge pump valves, and a quantity of assorted bolts nuts etc.*

*The foregoing is a correct description.*  
*F. J. Palethorpe* Manufacturer.

Dates of Survey while building { During progress of work in shops - - } *SECRETARY* <sup>1907</sup> *Mar 27, Apr 6, 9, 12, 23, May 2, 4, 9, 10, 13, 29, June 5, 7, 12, 17, 19*

{ During erection on board vessel - - } *June 22, 26, 29, July 1, 8, 17, 19, 23, 24, 30, Aug 9, 13, 14, 17, 20, 21, 26*

Total No. of visits *33.* Is the approved plan of main boiler forwarded herewith *Yes*

Dates of Examination of principal parts—Cylinders *5-6-07* Slides *5-6-07* Covers *23-7-07* Pistons *23-7-07* Rods *8-7-07*

Connecting rods *23-7-07* Crank shaft *19-6-07* Thrust shaft *19-6-07* Tunnel shafts \_\_\_\_\_ Screw shaft *23-7-07* Propeller *23-7-07*

Stern tube *19-7-07* Steam pipes tested *14-8-07* Engine and boiler seatings *30-7-07* Engines holding down bolts *13-8-07*

Completion of pumping arrangements *17-8-07* Boilers fixed *13-8-07* Engines tried under steam *17-8-07*

Main boiler safety valves adjusted *17-8-07* Thickness of adjusting washers *3/8" Stan, 1/32" post*

Material of Crank shaft *Steel* Identification Mark on Do. *1895* Material of Thrust shaft *Steel* Identification Mark on Do. *1895*

Material of Tunnel shafts \_\_\_\_\_ Identification Marks on Do. \_\_\_\_\_ Material of Screw shafts *Iron* Identification Marks on Do. *1895*

Material of Steam Pipes *Solid drawn Copper* Test pressure *400 lbs per sq inch.*

**General Remarks** (State quality of workmanship, opinions as to class, &c. *These engines and boiler have been constructed under special survey in accordance with the Society's Rules. The materials and workmanship are sound and good. The boiler tested by hydraulic pressure, and with the engines placed on board and tested under steam, they are now in good order, and safe working condition, and respectfully submitted as being eligible in my opinion to be classed, with the notation of \*L.M.C. 8.07. in the Register Book.*

*It is submitted that this vessel is eligible for THE RECORD. \*L.M.C. 8.07.* (See Rules under 20-11-07)

*HC 21-11-07.*

*J.S.*  
*21.11.07*

The amount of Entry Fee.. £ *1* : 0 : 0 When applied for, \_\_\_\_\_

Special .. .. £ *13* : 1 : 0 \_\_\_\_\_

Donkey Boiler Fee .. .. £ \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ When received, *12/11/07*

Travelling Expenses (if any) £ \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_

*£ 14 : 1*

*James Barclay*  
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.  
 FRI. 22 NOV 1907

Committee's Minute *Deferred* FRI. 18 OCT 1907

Assigned \_\_\_\_\_

Certificate (if required) to be sent to \_\_\_\_\_

The Surveyors are requested not to write on beyond the space for Committee's Minutes.

