

REPORT ON MACHINERY.

Port of Sunderland

Received at London Office WED. 14 MAR 1906

No. in Survey held at Sunderland Date, first Survey 17th November, 05 Last Survey 6th March 1906
Reg. Book.

on the Steel Screw Steamer "Cambria" (Number of Visits 29) Tons { Gross 34,025.57
Net 2,204.29

Master A. Kell Built at Sunderland By whom built Sunderland S.B. & Co. Ltd. When built 1906

Engines made at Sunderland By whom made N.E. Marine Engineering Co., Ltd. when made 1906

Boilers made at Sunderland By whom made N.E. Marine Engineering Co., Ltd. when made 1906

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

Nom. Horse Power as per Section 28 308 Is Refrigerating Machinery fitted no Is Electric Light fitted no

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

Dia. of Cylinders 23 1/2 - 39 - 66 Length of Stroke 45 Revs. per minute 62 Dia. of Screw shaft as per rule 14 3/8 Material of Iron
as fitted 14 3/8 screw shaft

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 4-10 1/2

Dia. of Tunnel shaft as per rule 12 Dia. of Crank shaft journals as per rule 12 5/8 Dia. of Crank pin 12 5/8 Size of Crank webs 8 1/2 x 7 1/2 Dia. of thrust shaft under
as fitted 12 collars 12 5/8 Dia. of screw 14-0 Pitch of screw 14-0 No. of blades four State whether moveable no Total surface 92 sq

No. of Feed pumps Two Diameter of ditto 3 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 duplex Sizes of Pumps 4x9x9 - 6x11x6 No. and size of Suctions connected to both Bilge and Donkey pumps
In Engine Room Three 3 1/2 dia In Holds, &c. Two in each fore Hold & after main
hold 3 1/2 dia one 3 1/2 aftermost hold & tunnel well.

No. of bilge injections one size 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 no

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 29/1/06 Is the screw shaft tunnel watertight yes

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

BOILERS, &c.— (Letter for record 5) Total Heating Surface of Boilers 4610 sq Is forced draft fitted no

No. and Description of Boilers Two single ended, Cyl. mult. Working Pressure 180 lb Tested by hydraulic pressure to 360 lb

Date of test 6/2/06 Can each boiler be worked separately yes Area of fire grate in each boiler 58 sq No. and Description of safety valves to
each boiler Two, direct spring Area of each valve 4.04 sq Pressure to which they are adjusted 185 lb Are they fitted with easing gear yes

Smallest distance between boilers or uptakes and bunkers or woodwork 18 Mean dia. of boilers 15-9 1/2 Length 10-6 Material of shell plates steel

Thickness 1 1/4 Range of tensile strength 28 3/4 Are they welded or flanged no Descrip. of riveting: cir. seams Lap or R. long. seams DRS - TR

Diameter of rivet holes in long. seams 19 Pitch of rivets 8 1/8 Lap of plates or width of butt straps 19

Per centages of strength of longitudinal joint rivets 86.3 Working pressure of shell by rules 181.5 lb Size of manhole in shell end 16x12
plate 85.5

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

Length of plain part top 9 Thickness of plates crown 9 Description of longitudinal joint weld No. of strengthening rings —
bottom 7.6

Working pressure of furnace by the rules 185.5 lb Combustion chamber plates: Material steel Thickness: Sides 3/4 Back 13/16 Top 3/4 Bottom 1/2

Pitch of stays to ditto: Sides 8 1/8 x 11 7/8 Back 11 1/2 x 10 1/2 Top 11 7/8 x 8 1/8 If stays are fitted with nuts or riveted heads nuts Working pressure by rules 181.4 lb

Material of stays steel Diameter at smallest part 1 1/8 Area supported by each stay 106.12 Working pressure by rules 181.1 lb End plates in steam space:

Material steel Thickness 1 1/32 Pitch of stays 23 1/2 x 22 How are stays secured DR + W Working pressure by rules 180.9 lb Material of stays steel

Diameter at smallest part 3.54 Area supported by each stay 51.4 Working pressure by rules 189.9 lb Material of Front plates at bottom steel

Thickness 1 1/8 Material of Lower back plate steel Thickness 1 1/8 Greatest pitch of stays 14 3/4 x 10 1/2 Working pressure of plate by rules 185 lb

Diameter of tubes 3 1/4 Pitch of tubes 4 1/2 x 4 3/4 Material of tube plates steel Thickness: Front 13/16 Back 13/16 Mean pitch of stays 9 x 9 1/2

Pitch across wide water spaces 14 1/2 Working pressures by rules 215.4 lb Girders to Chamber tops: Material steel Depth and
thickness of girder at centre 8 1/4 x 2 Length as per rule 30 Distance apart 11 5/8 Number and pitch of Stays in each Two 8 1/8

Working pressure by rules 183 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 new, state whether, and when, one will be sent?

DONKEY BOILER— No. Description

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

Diap. 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 Thickness of shell crown plates Radius of do. No. of Stays to do.

Diap. 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:— one set of coupling bolts & nuts, two each top end, bottom end & main bearing bolts & nuts, one set each feed & bilge pump valves, boiler & condenser tubes & fire bars, one propeller shaft & propeller & assorted bolts & iron.

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

M. A. Peatling

Dates of Survey while building

During progress of work in shops - 1905. Nov. 17, Decr. 5, 14, 21, 22, 23, - 06 - Jan. 8, 10, 12, 15, 16, 17, 19, 22, 24, 26, 29, 30, 31, Febry. 1, 2, 5, 6, 15.

During erection on board vessel - 20, 22, 25, Mch 2, 6.

Total No. of visits 29

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 and workmanship sound & good, the Boilers and steam pipes have been tested by Hydraulic pressure in accordance with the Rules & the Machinery worked satisfactorily at the moorings, and the safety valves of the main and donkey Boilers have been adjusted under steam to their working pressure, and easing gear fitted.

This Vessel is Eligible in my opinion to have the notation of **LMC 306** in the Register Book -

It is submitted that this vessel is eligible for **THE RECORD L.M.C. 306**

The amount of Entry Fee. . . £ 3 : :
 Special £ 35 : 8 :
 Donkey Boiler Fee £ : :
 Travelling Expenses (if any) £ : :

R. M. S.
14.3.06
W. Lloyd
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

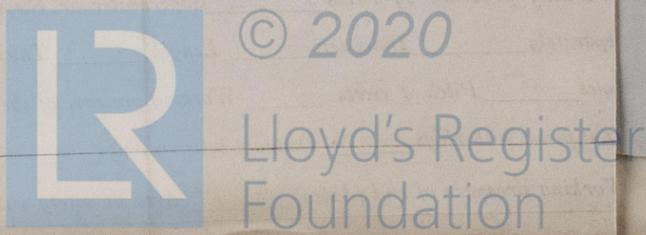
Committee's Minute

Assigned

MAR 16 1906

+ L.M.C. 306

MACHINERY CERTIFICATE WRITTEN.



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Form No. 1B. Write "Silver Stroke" opposite its corresponding letter.