

REPORT ON MACHINERY.

No. 16580

Received at London Office

WED. DEC. 17. 1913

Date of writing Report

19

When handed in at Local Office

12/12/13. Port of Greenock

No. in Survey held at

Greenock

Date, First Survey

10th Aug. 1912

Last Survey

5th Dec. 1913

Reg. Book.

(Number of Visits

91)

on the

TWIN SCREW STEAMER "BERRIMA."

Tons

Gross 11,137

Net 7,037

When built 1913

Master

Hine

Built at

Greenock

By whom built

Caird & Co. Ltd.

Engines made at

Greenock

By whom made

Caird & Co. Ltd.

when made

1913

Boilers made at

Greenock

By whom made

Caird & Co. Ltd.

when made

1913

Registered Horse Power

Owners Peninsular & Oriental S.N. Coy.

Port belonging to Greenock

Ngn. Horse Power as per Section 28

1200

Is Refrigerating Machinery fitted for cargo purposes

Yes

Is Electric Light fitted

Yes

ENGINES, &c.—Description of Engines

Quadruple Expansion

No. of Cylinders

Four

No. of Cranks

Four

Dia. of Cylinders

23½ - 34½ - 48½ - 70

Length of Stroke

54"

Revs. per minute

88

Dia. of Screw shaft

as per rule 14.9"

Material of screw shaft

Steel

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

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

5.0"

Dia. of Tunnel shaft

as per rule 12.9"

Dia. of Crank shaft journals

as per rule 13.6"

Dia. of Crank pin

14.4"

Size of Crank webs

15" x 10"

Dia. of thrust shaft under

collars

14.4"

Dia. of screw

14.6"

Pitch of Screw

18.0"

No. of Blades

3

State whether moveable

Yes

Total surface

No. of Feed pumps

2

Diameter of ditto

10"

Stroke

24"

Can one be overhauled while the other is at work

Yes

No. of Bilge pumps

1

Diameter of ditto

10"

Stroke

24"

Can one be overhauled while the other is at work

Yes

No. of Donkey Engines

Five

Sizes of Pumps

2 x 8, 2 x 10, 2 x 12, 2 x 14, 2 x 16

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

In Engine Room

7 STOKHOLD

In Holds, &c.

No. 1 HOLD. 2-3½" dia. No. 2 HOLD. 2-3½" dia.

No. of Bilge Injections

2

Connected to condenser, or to circulating pump

C. P.

Is a separate Donkey Suction fitted in Engine room & size

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

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

Below

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

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

Dates of examination of completion of fitting of Sea Connections

10/9/13

of Stern Tube

10/9/13

Screw shaft and Propeller

10/9/13

Is the Screw Shaft Tunnels watertight

Yes

Is it fitted with a watertight doors

Yes

worked from upper platform

BOILERS, &c.—(Letter for record

S. V.)

Manufacturers of Steel

J. Colville & Sons Ltd.

20B + 25B

Total Heating Surface of Boilers

11924 D.E.
1264 S.E.
1318 S.C.P.

Is Forced Draft fitted

Yes

No. and Description of Boilers

Four

Cylindrical

Horizontal

(2 Double & 2 Single)

Working Pressure

215 lbs

Tested by hydraulic pressure to

430 lbs

Date of test

5/9/13

No. of Certificate

1139

Can each boiler be worked separately

Yes

Area of fire grate in each boiler

144 sq. ft.

No. and Description of Safety Valves to

each boiler

2

Are they fitted with easing gear

Yes

Smallest distance between boilers or uptakes and bunkers or woodwork

12"

Mean dia. of boilers

16.6"

Length

20.0"

Material of shell plates

Steel

Thickness

1 3/32"

Range of tensile strength

30 tons

Are the shell plates welded or flanged

No

Descrip. of riveting: cir. seams

Lap Double & Triple

long. seams

Lap Double & Triple

Diameter of rivet holes in long. seams

1 3/32"

Pitch of rivets

10 1/2"

Lap of plates or width of butt straps

24 1/2"

Per centages of strength of longitudinal joint

rivets 95.2

plate 83.6

Working pressure of shell by rules

253 lbs

Size of manhole in shell

16" x 12"

Size of compensating ring

8 1/4" x 1 3/32"

No. and Description of Furnaces in each boiler

8

Material

Steel

Outside diameter

40 1/2"

Length of plain part

top 8' 2"

Thickness of plates

crown 5"

Description of longitudinal joint

weld

No. of strengthening rings

3

T Bars

on 1st Bottom

Working pressure of furnace by the rules

233 lbs

Combustion chamber plates: Material

Steel

Thickness: Sides

5"

Back

Top 2 3/32"

Bottom 7 1/8"

Pitch of stays to ditto: Sides

7 1/2" x 5 1/2"

Back

Top 9 1/2" x 8 1/2"

If stays are fitted with nuts or riveted heads

Nuts

Working pressure by rules

218 lbs

Material of stays

Steel

Diameter at smallest part

1 5/8"

Area supported by each stay

49"

Working pressure by rules

234 lbs

Material of stays

Steel

Material

Steel

Thickness

1 1/4"

Pitch of stays

18 1/2" x 16 1/2"

How are stays secured

Nuts & washers

Working pressure by rules

264 lbs

Material of Front plates at bottom

Diameter at smallest part

3 3/8"

Area supported by each stay

209"

Working pressure by rules

264 lbs

Material of Lower back plate

Steel

Thickness

1 3/8"

Greatest pitch of stays

Diameter of tubes

2 1/2"

Pitch of tubes

3 1/4" x 3 1/4"

Material of tube plates

Steel

Thickness: Front

1 1/4" x 1 1/4"

Back

3 1/4"

Mean pitch of stays

Pitch across wide water spaces

13 1/2"

Working pressures by rules

293 lbs

Girders to Chamber tops: Material

Steel

Depth and

thickness of girder at centre

9" x 13"

Length as per rule

Distance apart

Working pressure by rules

223 lbs

Superheater or Steam chest; how connected to boiler

None

Can the superheater be shut off and the boiler worked

separately

Diameter

Length

Thickness of shell plates

Material

Description of longitudinal joint

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

Yes

Lloyd's Register

100239-0022

VERTICAL DONKEY BOILER—Manufacturers of Steel

No. *None* 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 Radius of do. Stayed by

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

SPARE GEAR. State the articles supplied:— $\frac{1}{2}$ Crank shaft, 1 Propeller shaft, 2 Propeller blades, 1 set Propeller blades, 1 set Crank pin Bushes, 1 Eccentric wheel & strap, 2 Piston valves, 1 set Crosshead Bushes, 4 Slide Spindles, 1 S.P. Piston, 1 P. Piston Head, 4 sets Packing Rings, 1 Piston Rod, 1 Piston Rod gland, Air Pump Bucket, Rod & gratings, 1 set Spare gear for Centrifugal Pump, 2 Piston valve Packing Rings, 1 Piston valve Casings liners, 1 Thomson's shaft Coupling

The foregoing is a correct description, 2 Spare Armatures and list of Spare gear required by the Rules.

Manufacturer.

Malcolm Fisher

Dates of Survey while building

During progress of work in shops --	1912 Aug. 10-20-28 Sept. 3-6-16-18-25 Oct. 4-8-16-29 Nov. 13-15-18-28 Dec. 4-12-17-25 1913 Jan. 6-13-15-17-21-29 Feb. 3-6-10-18-21-25-28 Mar. 5-10-12-18-20-26-29 Apr. 1-8-18-25-29 May 1-2-6-8-12-16-20-21-27-30 June 3-5-9-24-27-30
During erection on board vessel --	July 29-31 Aug. 1-6-7-13-19-27 Sept. 3-5-9-10-15-16-18-22-26 Oct. 3-9-10-30 Nov. 6-12-16-19 Dec. 1-2-4-5
Total No. of visits	91

Is the approved plan of main boiler forwarded herewith *Yes.*

Dates of Examination of principal parts—Cylinders 16/11/12 Slides 18/9/13 Covers 5/12/13 Pistons 18/9/13 Rods 5/9/13

Connecting rods 5/9/13 Crank shaft *See Report* Thrust shaft 16/5/12 Tunnel shafts *See Report* Screw shaft 5/9/13 Propellers 5/9/13

Stern tubes 29/7/13 Steam pipes tested *See Report* Engine and boiler seatings 10/9/13 Engines holding down bolts 24/9/13

Completion of pumping arrangements 6/11/12 Boilers fixed 6/11/12 Engines tried under steam 5/12/13

Main boiler safety valves adjusted 6/11/12 Thickness of adjusting washers *See Report*

Material of Crank shaft *Steel* Identification Mark on Do. *Steel* Material of Thrust shaft *Steel* Identification Mark on Do. 1156 D

Material of Tunnel shafts *Steel* Identification Marks on Do. 1156 A Material of Screw shafts *Steel* Identification Marks on Do. 1156 A

Material of Steam Pipes *Wrought Iron Lap welded* Test pressure 64.5 lbs. *✓*

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

The Engines and Boilers of this vessel were built under Special Survey and the materials and workmanship are good. When completed they were examined while running full power trials, and found to work satisfactorily.

The Machinery throughout is now in good and efficient condition and eligible in my opinion to have the record of **LMC 12, 13** marked in the Society's Register Book

It is submitted that
this vessel is eligible for
THE RECORD. + LMC 12. 13. F.D.

The amount of Entry Fee .. £ 3 : : : When applied for,
Special .. £ 75 : : : 12/12/13
Donkey Boiler Fee .. £ : : :
Travelling Expenses (if any) £ : : : 26/12/13

Committee's Minute GLASGOW 16 DEC 1913

Assigned + LMC 12, 13

MACHINERY CERTIFICATE
WRITTEN 17.12.13

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Lloyd's Register
Foundation

GREENOCK

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

16.12.13