

REPORT ON MACHINERY.

Port of *Belfast*

MUN. 23 NOV 1904

Received at London Office

Survey held at

Date, first Survey

Last Survey

1903

(Number of Visits 92)

the

Tons

Gross

10522

Net

5258

When built

1903

de at

By whom made

Harland & Wolff L^{td}

when made

1903

le at

By whom made

when made

Horse Power

1800

Owners

Peninsular & Oriental S. N. Co. Ltd

belonging to

Belfast

Power as per Section 28

1799

Is Electric Light fitted

Yes

S, &c.—Description of Engine

Twin Screw Quadruple Expansion

No. of Cylinders

8

No. of Cranks

8

of Cylinders

29"-42"-60"-85"

Length of Stroke

54

Revolutions per minute

85

Diameter of Screw shaft

as per rule

16.25

Tunnel shaft

as fitted

16.25

Diameter of Crank shaft journals

16.12

Diameter of Crank pin

14.5

Size of Crank webs

32"x12.5"

screw

18"-0"

Pitch of screw

23"-0"

No. of blades

8

State whether moveable

Yes

Total surface

78 sq ft each

pumps

each engine

52"

Stroke

27"

Can one be overhauled while the other is at work

Yes

pumps

each engine

5"

Stroke

27"

Can one be overhauled while the other is at work

Yes

key Engines

Brother's

Sizes of Pumps

5

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

Room

Six-4"

Stroke holds

Two 3" & Six 2.5"

Holds, &c.

Sixteen-32" Two-8"

injections

2 sizes

42"

Connected to condenser,

Yes

Is a separate donkey suction fitted in Engine room & size

Yes 2 at 4"

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

Yes

nections with the sea direct on the skin of the ship

Yes

Are they

Valves or Cocks

Both

ed 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

Yes

h 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

How are they protected

Wood Casings

are carried through the bunkers

Fore hold suction

How are they protected

Wood Casings

Yes

es, cocks, valves, and pumps in connection with the machinery and all boiler mountings accessible at all times

Yes

ge suction pipes, cocks, and valves arranged so as to prevent any communication between the sea and the bilges

Yes

stern tube, propeller, screw shaft, and all connections examined in dry dock

Yes

worked from

Upper Deck

Is forced draft fitted

Yes

Hardwood

S, &c.—

(Letter for record)

Five - Double Ended Cylinders

Total Heating Surface of Boilers

27493 sq ft

Is forced draft fitted

Yes

Hardwood

Description of Boilers

Five - Double Ended Cylinders

Working Pressure

215 lbs

Tested by hydraulic pressure to

430 lbs

Can each boiler be worked separately

Yes

Area of fire grate in each boiler

116 sq ft

Description of safety valves to

116 sq ft

gear

Yes

Smallest distance between boilers or uptakes and bunkers or woodwork

About 24"

Mean diameter of boilers

14"-8"

Material of shell plates

Steel

Thickness

1 1/2"

Description of riveting: circum. seam

Lap & Butt

seams

Butt & Lap

rivet holes in long. seams

1 1/8"

Pitch of rivets

10"

Length of plates

22 3/8"

width of butt straps

22 3/8"

s of strength of longitudinal joint

91.4

Working pressure of shell by rules

248 lbs

Size of manhole in shell

16" x 12"

Material

Steel

Outside diameter

45 3/4"

No. of strengthening rings

4 3/4"

essure of furnace by the rules

234 lbs

combustion chamber plates: Material

Steel

Thickness: Sides

5/8"

Back

5/8"

Top

3/4"

Bottom

3/4"

ys to ditto: Sides

8 x 7/8"

Back

8 x 7/8"

Top

8 x 7/8"

If stays are fitted with nuts or riveted heads

Yes

Working pressure by rules

218 lbs

Material of stays

Steel

stays

Steel

Diameter at smallest part

1 1/2"

Area supported by

66 sq ft

Working pressure by rules

228 lbs

Material of stays

Steel

Thickness

1"

at smallest part

2 7/8"

Area supported by

251 1/2 sq ft

Working pressure by rules

268 lbs

Material of Front plates at bottom

Steel

Material of Lower back plate

Steel

Thickness

1 1/2"

Greatest pitch of stays

13"

Working pressure of plate by rules

267 lbs

Material of tube plates

Steel

Thickness: Front

3/4"

tubes

22"

Pitch of tubes

33 x 33"

Material of tube plates

Steel

Thickness: Back

3/4"

Mean pitch of stays

8 1/2 x 7 1/2"

Working pressures by rules

362 lbs with 7 baulks

ss wide water spaces

13 1/2"

Length as per rule

51"

Distance apart

8 1/4"

Number and pitch of Stays in each

3-8"

Can the superheater be shut off and the boiler worked

Yes

Superheater or Steam chest; how connected to boiler

Yes

pressure by rules

236 lbs

Diameter

10 1/2 x 2"

Length

318 lbs

Thickness of shell plates

1 1/2"

Material

Steel

Description of longitudinal joint

Butt & Lap

Pitch of rivets

10"

Working pressure of shell by rules

248 lbs

Diameter of flue

DONKEY BOILER—

Description *None*

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 _____ Diameter of donkey boiler _____ Length _____ Material of shell plates _____ Thickness _____

Description of riveting long. seams _____ Diameter 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:— *See separate sheets*

The foregoing is a correct description.

For *Harland & Wolff* Manufacturer.

Dates of Survey while building _____

During progress work in shops _____

During erection on board vessel _____

Total No. of visits *92*

Sept 22. 6. 13. 16. 19. 25. 30 Oct 2. 6. 9. 14. 20. 23. 29. 31 Nov 5.

14. 18. 21. 26 Dec 2. 4. 8. 10. 15. 18 Jan 2. 8. 9. 14. 15. 16. 19. 21. 23. 27. 31

and up to 19 Nov 1903

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

ENGINES—Length of stern bush *72"* Diameter of crank shaft journals *16 1/2"* Diameter of thrust shaft under collars *14"*

BOILERS—Range of tensile strength *29-32* Are they welded or flanged *No* DONKEY BOILERS—No. *1* Range of tensile strength *✓*

Is the approved plan of main boiler forwarded herewith *✓* Is the approved plan of donkey boiler forwarded herewith *✓*

The machinery of this vessel has been constructed under Special Survey, and in accordance with the Rules. The workmanship throughout, and the materials used in its construction, are of the best description, and the Spare Gear is ample. On trial under steam in Belfast Lough the machinery worked satisfactorily.

In my opinion, it is eligible to have record *+ L.M.C.**11-03. Forced draft, Electric Light.*

The Electric Light installation is by Siemens, London. Report will be forwarded later. A list of the steel tests on the boilers is appended.—See Letters to the Secretary dated 25th Sept & 13th Oct 1902.

It is submitted that
this vessel is eligible for
THE RECORD

+ L.M.C. 11.03. FD. ELEC. LIGHT

Rmd
24.11.03

The amount of Entry Fee £ *3* : - : When applied for, *21-11-1903*Special £ *109. 19* : - : When received, *27-11-03*Donkey Boiler Fee £ : : Travelling Expenses (if any) £ : : *27-11-03*

Committee's Minute

TUES. 24 NOV 1903

Assigned

*+ L.M.C. 11.03 7D*MACHINERY CERTIFICATE
WRITTEN.

Rpt. 9a.

Port of *Belfast*Continuation of Report No. *5659* dated *21st Nov 1903* on the*J.S.S. Marmora*

List of Spare Gear.

Boilers:— 2 Complete sets manhole doors for 1st End boiler complete, and 1 set for 3rd End boiler.

Set fire bars & heaters for 2nd End & 1st End boilers & patterns for fire bars

4 Safety Valve Springs, 50 Females for boiler tubes for fanges and considerable quantity of spare gear for forced draft arrangement.

Centrifugal Pumps:— Fan, slide valve, slide valve spindle, piston, piston rod, connecting-rod top & bottom end, braces & bolts

Condenser:— 75 Condenser tubes, 225 Screwed flange & packing.

Cylinders. Main Engine:— H. P. cylr cover: set of H. P. cover bolts set: 12 studs for cylr covers 6 studs cylr cover & stuffing boxes; 4 studs for slide valve spindle stuffing boxes; 1 gland for each cylr & stuffing box (cover end) made in valves; 4 cylr escape valve & springs

Electric Light Machinery:— Governor rod & strap, valve spindle and slide valve: set crank pin braces: 2 H. P. pistons & rings: 2 L. P. do: 2 open & 2 bottom end bolts; piston rod & braces complete.

Pumps Main Engine:— For pump bucket, rod of pump complete: for pump foot & head valve complete set funnel & pack pump valves & seats: set large pump do: set bath & sputum pump do: 2 Feed pump escape valves & springs: large supply studs for all flange & pump valves

Pistons:— H. P. piston & packing rings complete: I. P. piston do: I. P. piston do: L. P. piston do: also complete sets packing rings all pistons additional.

Piston Rods:— H. P. & L. P. piston rods complete: 1 set H. P. crosshead braces: 2 set L. P. do: 1 set crank pin braces with bolts complete

Propeller:— 2 Main: Propeller blades & set studs & nuts. Shafting:— 1 Propeller shaft & set feathers for same 1/4 Crank shaft: 16 Propeller coupling bolts: 9 Crank coupling bolts

Slide Valves:— 2 H. P. piston valves complete: 2, circular feed valves for do: 2 I. P. piston valves complete & 2 feed valves: 1 L. P. slide valve

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W1533 0089

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Belfast

21st Nov 1903 on the

U.S.S. "Marmora"

List of Spare Parts, continued.

Slide Valve Spindles: - 1, H-P, 1, I.P.² and 1, I.P. slide

valve spindles complete: - Pack for slide

valve links: 4 sets brass liners for links:

1 H.P. & 1 I.P. eccentric sheave with bolts

complete

Kerr's Fresh Water Pump: - Set valves & seats complete: 1

bucket ring: 1 piston ring.

Kerr's Bilge & Ballast Pump: - Section & delivery valves

and seats: 2 bucket rings: 1 piston ring

Kerr's General Pump: - Section & delivery valves & seats

2 bucket rings: 1 piston ring

Kerr's Aux. Feed Pump: - 2 set valves: 1 set of springs

Main - - - - - set section & delivery valves

& seats & guards complete: 1 bucket ring

1 packing ring: 1 piston ring: 60 valves: 48

springs

Sanitary Pump: - Section & delivery valve seat,

with valves: 4 bucket rings: 2 piston rings

Donkey Pumps

2 Kerr's Double Feed 17 1/2" x 13" x 26"

2 - Harbour & Auxiliary Feed 8" x 6" x 15"

2 - Ballast 8" x 9 1/2" x 15"

1 - Sanitary Fire set 8" x 10" x 21"

1 - Fresh Water 5" x 5" x 12"

2 - Ash Ejector Duplex 12" x 7 1/2" x 10"

2 Main Engine Centrifugal Circulating Pumps, with
two engines to each Pump

R. J. Revere