

REPORT ON MACHINERY.

No. 6137

TUES. 3 JUL 1906

Received at London Office

Port of *Belfast*

Date, first Survey *1905. July 11*

Last Survey *1906. June 28*

(Number of Visits *75*)

No. in Survey held at *Belfast*

Reg. Book.

on the *S.S. Ortega*

Master *Belfast*

Built at *Belfast*

By whom built *Harland & Wolff L^{td}*

Tons

When built *1906*

Engines made at *Belfast*

By whom made

when made

Boilers made at

By whom made

when made

Registered Horse Power

Owner *Pacific Steam Nav. Coy*

Port belonging to *Liverpool*

Tom. Horse Power as per Section 28 *1125*

Is Refrigerating Machinery fitted for cargo purposes *No*

Is Electric Light fitted *Yes*

ENGINES, &c.—Description of Engines

Twin Screw Quadruple Expansion

No. of Cylinders *8*

No. of Cylinders *24 - 34 1/2 - 50 - 71*

Length of Stroke *54*

Revs. per minute *76*

Dia. of Screw shaft

as per rule *14.6*

Material of *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

Is the propeller boss *Yes*

If the liner is in more than one length are the joints burned *Yes*

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 *Yes*

If two

liners are fitted, is the shaft lapped or protected between the liners *Yes*

Length of stern bush *63"*

Dia. of Tunnel shaft

as per rule *13.57*

as fitted *14.5*

Dia. of Crank shaft journals

as per rule *14.25*

as fitted *15.25*

Dia. of Crank pin *5 1/2"*

Size of Crank web *20 1/2 x 10 1/2"*

Dia. of thrust shaft under

rollers *15"*

Dia. of screw *16 - 10"*

Pitch of Screw *22 - 0"*

No. of Blades *3*

State whether moveable *Yes*

Total surface *702 sq ft*

No. of Feed pumps *1*

Diameter of ditto *5 1/2"*

Stroke *30"*

Can one be overhauled while the other is at work *Yes*

No. of Bilge pumps *1*

Diameter of ditto *5 1/2"*

Stroke *30"*

Can one be overhauled while the other is at work *Yes*

No. of Donkey Engines *7*

Sizes of Pumps

14 x 10 1/2 x 26

14 x 10 1/2 x 26

8 x 6 x 12

9 x 10 x 12

7 x 8 x 8

5 x 5 x 6

5 x 5 x 6

10 - 3 1/2" x 6 - 2 1/2"

No. in Engine Room *4 - 8 1/2" x 4 - 2 1/2"*

Connected to condenser, or to circulating pump

General

Donkey

Separate

Donkey Suction fitted in Engine room & size *2 - 4"*

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 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*

That pipes are carried through the bunkers *Fore to the customs*

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 *29-3-06*

of Stern Tube *29-3-06*

the Screw Shaft Tunnel watertight *Checked & fitted with a watertight door*

worked from *Top platform to Room*

MANUFACTURERS, &c.—(Letter for record *S*)

Manufacturers of Steel *D. Colville & Sons L^{td}*

Total Heating Surface of Boilers *20343 sq ft*

Is forced Draft fitted *No*

No. and Description of Boilers *3 Double End*

Working Pressure *215 lbs*

Tested by hydraulic pressure to *430 lbs*

Date of test *14-3-06*

Can each boiler be worked separately *Yes*

Area of fire grate in each boiler *1174 sq ft*

No. and Description of Safety Valves to *3 Double End*

each boiler *3 Direct Spring*

Area of each valve *1714 sq ft*

pressure to which they are adjusted *215 lbs*

Are they fitted with easing gear *Yes*

Smallest distance between boilers or uptakes and bunkers or woodwork *30"*

Mean dia. of boilers *15-0"*

Length *18-0"*

Thickness *1 1/2"*

Range of tensile strength *29-32 tons*

Are the shell plates welded or flanged *No*

Description of riveting: cir. seam *Double End*

g. seam *Auto. Steel*

Diameter of rivet holes in long. seams *1 1/2"*

Pitch of rivets *10"*

Lap of plates or width of butt straps *22 1/2"*

Percentages of strength of longitudinal joint

rivets *92.9*

Use of compensating rings *McNeil's*

No. and Description of Furnaces in each boiler *6 - None in*

Material *Steel*

Outside diameter *47"*

Length of plain part

top *10"*

Thickness of plates

crown *3 1/4"*

Description of longitudinal joint *Weld*

No. of strengthening rings *3 Top*

Working pressure of furnace by the rule *241*

Combustion chamber plates: Material *Steel*

Thickness: Sides *5/8"*

Back *5/8"*

Top *5/8"*

Bottom *3/4"*

Pitch of stays to ditto: Sides *8 1/2" x 7 1/2"*

Back *8 1/2" x 7 1/2"*

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

Working pressure by rules *217 lbs*

Material of stay *Steel*

Diameter at smallest part *1 1/2" x 1 1/8"*

Area supported by each stay *61 1/2 sq ft*

Working pressure by rules *257 lbs*

plates in steam space:

Material *Steel*

Thickness *1 1/4"*

Pitch of stays *17 1/2" x 15"*

How are stays secured *Welded*

Working pressure by rules *279 lbs*

Diameter at smallest part *2 1/8"*

Area supported by each stay *262 1/2 sq ft*

Working pressure by rule *246 lbs*

Material of Front plates at bottom *Steel*

Thickness *1 1/2" x 1 1/8"*

Material of Lower back plate *Steel*

Thickness *1 1/2"*

Greatest pitch of stays *8" x 8"*

Working pressure of plate by rules *246 lbs*

Diameter of tubes *2 1/4"*

Pitch of tubes *4" x 4"*

Material of tube plate *Steel*

Thickness: Front *5/8"*

Back *1/2"*

Mean pitch of stays *8" x 8"*

Pitch across wide water spaces *14 1/2"*

Working pressures by rules *254 lbs with 5/8" girders*

Material *Iron*

Depth and

Thickness of girder at centre *7" x (5/8" x 2)*

Length as per rule *46 1/2"*

Distance apart *8 1/2"*

Number and pitch of stays in each *6 - 7"*

Working pressure by rules *246 lbs*

Superheater or Steam chest; how connected to boiler *Yes*

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

Thickness

Stiffened with rings

Distance between rings

Working pressure of end plates

Area of safety valves to superheater

Are they fitted with easing gear

Working pressure by rules

End plates: Thickness

How stayed

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How stayed

Working pressure of end plates

Area of safety valves to superheater

Are they fitted with easing gear

Working pressure by rules

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:— *See other Sheet*

The foregoing is a correct description,

Manufacturer. *for Harland & Wolff Ltd*

Dates of Survey while building

During progress of work in shops—	1905, Aug 11, 15, 21, 25, 28, 31, Sept 5, 8, 12, 14, 19, 26, Oct 3, 4, 11, 17
During erection on board vessel—	21, 26, Nov. 1, 3, 6, 10, 16, 22, 24, Dec 2, 4, 6, 12 up to Jan 28, 1906
Total No. of visits	75

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

Dates of Examination of principal parts—Cylinders *15/2/05* Slides *1/05* Covers *5* Pistons _____ Rods _____

Connecting rod *20/2/06* Crank shaft *23-2-06* Thrust shaft *23-2-06* Tunnel shafts *23-3-06* Screw shaft *2-3-06* Propeller *2-3-06*

Stern tube *2-3-06* Steam pipes tested *9-3-06* Engine and boiler seatings *21-4-06* Engines holding down bolts *18-5-06*

Completion of pumping arrangements *21-5-06* Boilers fixed *21-4-06* Engines tried under steam *23-5-06*

Main boiler safety valves adjusted *23-5-06* Thickness of adjusting washers *3/8 & 1/2*

Material of Crank shaft *J. Steel* Identification Mark on Do. *R.J.B. 21-3-06* Material of Thrust shaft *J. Steel* Identification Mark on Do. *R.J.B. 21-3-06*

Material of Tunnel shafts _____ Identification Marks on Do. _____ Material of Screw shafts _____ Identification Marks on Do. _____

Material of Steam Pipes *M. Iron + M. Steel* Test pressure *65 lbs*

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

The machinery of this vessel has been constructed under Special License, and in accordance with the Rules. The workmanship and the materials are of good description and on trial under steam in Belfast Lough, the machinery worked satisfactorily. In my opinion, it is eligible for record + L.M.C. 6-0 Electric Light.

It is submitted that this vessel is eligible for THE RECORD *H.M.C. 6.05. ELEC. LIGHT.*

J.M. R.M. 3.7.06

The amount of Entry Fee... £ 3-0-0

Special... £ 76-5-0

Donkey Boiler Fee... £ : :

Travelling Expenses (if any) £ : :

When applied for... 1905-1906

When received... 9.7.06

R. J. Beveridge
Engineer Surveyor to Lloyd's Register of British & Foreign Shipping

Committee's Minute **FRI. 6 JUL 1906**

Assigned *+ R.M.C. 6.05*

