

# REPORT ON MACHINERY.

No. 6376

SAT. 26 OCT 1907

Port of

*Belfast*

Received at London Office

No. in Survey held at

*Belfast*

Date, first Survey *24<sup>th</sup> Aug 1906* Last Survey *19<sup>th</sup> Oct 1907*

Reg. Book.

on the

*Proquois*

(Number of Visits *76*)

Gross *9201*

Net *5772*

When built *1907*

Master *J. W. Pratt*

Built at

*Belfast*

By whom built

*Harland & Wolff L<sup>td</sup>*

Engines made at

*Belfast*

By whom made

when made

*1907*

Boilers made at

*"*

By whom made

when made

Registered Horse Power *748*

Owners *Anglo American Oil Co L<sup>td</sup>*

Port belonging to *Belfast*

Nom. Horse Power as per Section *748*

Is Refrigerating Machinery fitted for cargo purposes *No*

Is Electric Light fitted *Yes*

ENGINES, &c.—Description of Engines

*Twin Screw Quadruple Expansion of Cylinders*

No. of Cranks *8*

Dia. of Cylinders *21"-30"-43½"-62"* length of Stroke *42*

Revs. per minute *85*

Dia. of Screw shaft

as per rule *11.23* 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

in 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 *57"*

Dia. of Tunnel shaft

as per rule *11.23* Dia. of Crank shaft journals

as per rule *11.23*

Dia. of Crank pin *12½"*

Size of Crank webs *18" x 8½"* Dia. of thrust shaft under

collars *12½"*

Dia. of screw *16"-3"*

Pitch of Screw *15"-8"*

No. of Blades *4*

State whether moveable *Yes*

Total surface *79 sq ft.*

No. of Feed pumps *2*

Diameter of ditto

Stroke

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

No. of Bilge pumps *2*

Diameter of ditto

Stroke

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

No. of Donkey Engines *2*

Size of *2"*

Stroke

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

In Engine Room *4-32" & 2-22"*

In Holds, &c. *2-22" (Drain pots in fore and aft)*

No. of Bilge Injections *2* sizes *8"*

Connected to condenser, or to circulating pump

*Pumps* Is a 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 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 *Both*

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 *Bilge and oil fuel suction*

How are they protected *Strong wood casings*

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 *26-6-07*

of Stern Tube *12-6-07*

Screw shaft and Propeller *26-6-07*

Is the Screw Shaft Tunnel watertight *No tunnel*

Is it fitted with a watertight door

worked from *Yes*

BOILERS, &c.—(Letter for record *9*)

Manufacturers of Steel *R. G. Caldwell & Sons L<sup>td</sup>*

Total Heating Surface of Boilers *19760 sq ft.*

Is forced Draft fitted *Yes*

No. and Description of Boilers *4—Single End Cyl.*

Working Pressure *215 lbs*

Tested by hydraulic pressure to *430 lbs*

Date of test *7-6-07*

No. of Certificate *896*

Can each boiler be worked separately *Yes*

Area of fire grate in each boiler *75½ sq ft.*

No. and Description of Safety Valves to

each boiler *Two Lever Safety*

Area of each valve *12.56 sq in.* pressure to which they are adjusted *215 lbs*

Are they fitted with easing gear *Yes*

Smallest distance between boilers or between boiler and bunkers on woodwork *18"*

Mean dia. of boilers *6'-1"*

Length *11'-0"* Material of shell plates *Steel*

Thickness *1½"*

Range of tensile strength *29-32 tons* Are the shell plates welded or flanged *No*

Descrip. of riveting: cir. seams *Top & B.*

long. seams *Butt Joints*

Diameter of rivet holes in long. seams *1½"*

Pitch of rivets *10"*

Gap of plates or width of butt straps *24½"*

Per centages of strength of longitudinal joint

plate *100%*

Working pressure of shell by rules *246 lbs*

Size of manhole in shell *16" x 12"*

Size of compensating ring *M<sup>o</sup> Nails*

No. and Description of Furnaces in each boiler *4—Mann. cast material*

Outside diameter *45½"*

Length of plain part

top *4"*

bottom *10"*

Thickness of plates

crown *3½"*

bottom *3½"*

Description of longitudinal joint *Weld*

No. of strengthening rings *5*

Working pressure of furnace by the rule *236 lbs*

Combustion chamber plates: Material *Steel*

Thickness: Sides *3½"* Back *5"* Top *3½"* Bottom *3"*

Pitch of stays to ditto: Sides *8½" x 7½"*

Back *7½" x 7½"*

Top *8½" x 7½"*

Are stays fitted with nuts or riveted heads *Nuts in working pressure by rules*

*229 lbs*

Material of stays *Steel*

Diameter at smallest part *1½"*

Area supported by each stay *64½"*

Working pressure by rules *218 lbs*

End plates in steam space:

Material *Steel*

Thickness *1½"*

Pitch of stays *14" x 15"*

How are stays secured *Nuts*

Working pressure by rules *216 lbs*

Material of stays *Steel*

Diameter at smallest part *2½"*

Area supported by each stay *24½"*

Working pressure by rules *239 lbs*

Material of Front plates at bottom *Steel*

Thickness *1½"*

Thickness *1½"*

Material of Lower back plate *Steel*

Thickness *1½"*

Greatest pitch of stays *12½"*

Working pressure of plate by rule *218 lbs*

Diameter of tube *22"*

Pitch of tubes *3½" x 3½"*

Material of tube plate *Steel*

Thickness: Front *5"*

Back *13"*

Mean pitch of stays *4½" x 4½"*

Depth and

Pitch across wide water spaces *13½"*

Working pressures by rules *349 lbs*

Material *Steel*

Thickness: Front *5"*

Back *13"*

Mean pitch of stays *4½" x 4½"*

Depth and

thickness of girder at centre *10½" x (8" x 2)*

Length as per rule *35"*

Distance apart *8½"*

Number and pitch of stays in each *3-7½"*

Can the superheater be shut off and the boiler worked

*Yes*

Working pressure by rules *221 lbs*

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

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

End plates: Thickness

How stayed

Working pressure of end plates

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

Working pressure of end plates

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Area of safety valves to superheater

Are they fitted with easing gear

Working pressure of end plates

Area of safety valves to superheater



# 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 Say \_\_\_\_\_

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: *2 Briggs propellers blades for each propeller; one propeller shaft, set piston rings each engine, 2 sets crank pin bushes each engine, 2 sets top end bushes, 1 section crank shaft, 2 slide valve rods & guides and block, 1 air pump rod, 7 impellers for circulating pump set and all plan to Lloyd's Rules Extra.*

The foregoing is a correct description,

*Geo Cunningham & Co Ltd.*

Dates of Survey while building { During progress of work in shops - 1906, Aug 24, 30 Sept 6, 14, 19, 26 Oct 4, 8, 10, 11, 17, 19, 24, 30, Nov 2, 9  
During erection on board vessel - 18, 16, 19, 22, 27 Dec 7, 11, 17, 1907, Jan 4, 8, up to Oct 19.  
Total No. of visits 46

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

Dates of Examination of principal parts—Cylinders *13-11-06* to *10-12-07* Pistons \_\_\_\_\_ Rods \_\_\_\_\_

Connecting rods *22-3-07* Crank shaft *11-11-06* Tunnel shafts \_\_\_\_\_ Screw shaft *23-5-07* Propellers *23-5-07*

Stern tube *16-5-07* Steam pipes tested *24-4-07* Engines and boiler seatings *9-7-07* Engines holding down bolts *6-8-07*

Completion of pumping arrangements *11-10-07* Boilers fixed *9-7-07* Engines tried under steam *19-10-07*

Main boiler safety valves adjusted *19-10-07* Thickness of adjusting washers *10-12-07*

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

Material of Tunnel shafts *None* Identification Marks on Do. *Do* Material of Screw shafts *Do* Identification Marks on Do. *Do*

Material of Steam Pipes *N. Iron & Solid drawn steel* Test pressure *645 lbs & 675 lbs*

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

*The machinery of this vessel has been constructed under Special Survey, and in accordance with the Rules. The workmanship and the materials used, are of good description throughout, and on trial in Belfast Lough, the machinery worked satisfactorily.*

*An arrangement for using oil fuel for the main boilers, was partly fitted, but was not completed. It is understood that the use of oil fuel, is not contemplated at present.*

*In my opinion, this vessel is eligible for record + L.M.C. 10-07, with notification "Forced Draft & Electric Light"*

It is submitted that this vessel is eligible for THE RECORD. *L.M.C. 10.07.*

*ELEC LIGHT.*  
*F. D.*

*HC 28.10.07*

The amount of Entry Fee.. £ *2-0-0*  
Special .. .. £ *57-8-0*  
Donkey Boiler Fee .. .. £ : :  
Travelling Expenses (if any) £ : :  
When applied for, *23-10-07*  
When received, *26-10-07*

*R. F. B. Bennett*  
Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

Committee's Minute

Assigned

TUES. 29 OCT 1907

*+ L.M.C. 1007*  
*F.D. Elec Light*

MACHINERY CERTIFICATE  
WRITTEN



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