

DONKEY BOILER— Description *No donkey boiler*
 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 casing 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:— *Propeller shaft. Piece crank shaft. Two propeller blades. Two top end
 two bottom end bolts & nuts. Two main bearing bolts & nuts. Two bolts & nuts for eccentric shaft. Six coupling bolts.
 15 Condenser tubes. 12 Junk ring bolts. 6 studs & nuts for propeller blades. 2 feed & 2 Relief pump valves. 2 Cy.
 valves & fittings. Feed escape valve & 2 springs. Fair crank pin bushes & cross head bushes. Air or oil pump &
 2 slide valve spindles. 100 fire bars. Assorted bolts & nuts.*
 The foregoing is a correct description,
 PRO WORKMAN, CLARK & CO., LIMITED. Manufacturer.
 M. H. T. Well

General Remarks (State quality of workmanship, opinions as to class, &c.)
 Dates of Survey while building: During progress of work in shops - July (1895) 22nd, Aug 9, 15, Sept 13, 23, 26, Oct 7, 14, 24, Nov 1, 5, 6, 9, 12, 13, 15
 During erection on board vessel - 21, 22, 25, 29, Dec 2, 9, 13, 18, Jan 14, Feb 17, 20, Mar 11, 12, 16, 18, 21, 26, April 9, 11
 Total No. of visits May 5, 7, 19, 20. Total 21

These engines & boilers have been constructed & fitted under special survey, & the boilers & pumping arrangements are in accordance with the approved tracings. Each separate length of main steam pipe has been tested by water pressure to double the working pressure. The safety valves are correctly adjusted to the working pressure. The electric lighting installation is by Messrs Lang & Chester Lim & a report is being forwarded. The approved tracings of boilers & pumping arrangements & six forging certificates are forwarded with this report. The machinery in my opinion renders the vessel eligible for the notification # Lm.C. 5.96 to be recorded in the Register Book.

It is submitted that this vessel is eligible for THE RECORD + L.M.C. 5.96. F.D.
 H.D.
 26.5.96

Certificate (if required) to be sent to _____
 The amount of Entry Fee.. £ 3 : 0 : _____ When applied for, _____
 Special £ 45 : 13 : _____ 20th May 1896
 Donkey Boiler Fee £ : : _____ When received, _____
 Travelling Expenses (if any) £ : : _____ 27th May 1896
 Committee's Minute TUES. MAY 26 1896
 Assigned + L.M.C. 5.96 F.D.

A. L. Jones
 MACHINERY CERTIFICATE ENGINEER SURVEYOR TO LLOYD'S REGISTER OF BRITISH & FOREIGN SHIPPING.
 WRITTEN

REPORT ON ELECTRIC LIGHTING INSTALLATION. No. 4619

Received at London Office 29.5.96
 Port of *Belfast* Date of First Survey *9th April* Date of Last Survey *27th May* No. of Visits *8*
 No. in Reg. Book on the Iron or Steel *See Ser. No. 'Langton Grange'* Port belonging to *London*
 Built at *Belfast* By whom *Workman Clark & Co. Lim* When built *1896*
 Owners *Wardell Bros & Co* Owners Address *146 Leadenhall St London E.C.*
 Yard No. *124* Electric Light Installation fitted by *Lang & Chester Lim* When fitted *1896*

DESCRIPTION OF DYNAMO, ENGINE, ETC. *Open fronted vertical inverted single cylinder
 9 1/2" diam 9" stroke Coupled direct on same Bed Plate to an identical dynamo
 Compound motor wound & with Gramme armature*
 Capacity of Dynamo *300* Amperes at *65* Volts, whether continuous or alternating current *Continuous*
 Where is Dynamo fixed *Engine starting Platform*
 Position of Main Switch Board *2 ft from Engine Step* having switches to *control* five circuits of lights, &c., as below
 Positions of auxiliary switch boards and numbers of switches on each *One in Saloon Pantry 3 switches One in
 Wheel house 5 switches Every circuit has a separate return to
 Switch Board & no one circuit is in any way connected with another*
 If cut outs are fitted on main switch board to the cables of main circuit *yes* and on each auxiliary switch boards to the cables of auxiliary
 circuits *yes* and at each position where a cable is branched or reduced in size *yes* and to each lamp circuit *yes*
 If vessel is wired on the double wire system are cut outs fitted to both flow and return wires or cables of all circuits including lamp circuits *yes*
 Are the cut outs of non-oxidizable metal *special tin* and constructed to fuse at an excess of *25%* per cent over the normal current
 Are all cut outs fitted in easily accessible positions *yes* Are the fuses of standard dimensions *yes* If wire fuses are used
 are permanent instructions fitted on or near each switch board giving particulars of proper size of fuse for each circuit *given to Engineer*
 Are all switches and cut-outs constructed of incombustible materials and fitted on incombustible bases *stone or porcelain*

Total number of lights provided for *200* arranged in the following groups:—
 A *Engine* 32 lights each of *16 & 32* candle power requiring a total current of *40* Amperes
 B *Saloon* 64 lights each of *16* candle power requiring a total current of *64* Amperes
 C *Amidship* 80 lights each of *16 & 32* candle power requiring a total current of *86* Amperes
 D *Fore Shop* 24 lights each of *16* candle power requiring a total current of *24* Amperes
 E *8* lights each of *16* candle power requiring a total current of *8* Amperes
 One Mast head light with *one* lamp each of *16* candle power requiring a total current of *8* Amperes
 Two Side light with *two* lamps each of *16 & 32* candle power requiring a total current of *3* Amperes
 Four *two* Cargo lights of *192* candle power, whether incandescent or arc lamps *12*
 2000 *arc* lamps *30*
 If are lights, what protection is provided against fire, sparks, &c. *268 Amperes*
*Resistance frames mounted on slate & enclosed in Cast Iron Box
 Arcs enclosed in strong opaque Globes cloud at Bottom
 Where are the switches controlling the masthead and side lights placed *In Wheelhouse on Bridge**

DESCRIPTION OF CABLES.
 Main cable carrying *300* Amperes, comprised of *17* wires, each *12* L.S.G. diameter, *.314* square inches total sectional area
 Branch cables carrying *90* Amperes, comprised of *19* wires, each *11* L.S.G. diameter, *.0956* square inches total sectional area
 Branch cables carrying *65* Amperes, comprised of *19* wires, each *16* L.S.G. diameter, *.0612* square inches total sectional area
 Leads to lamps carrying *34* Amperes, comprised of *7* wires, each *11* L.S.G. diameter, *.0352* square inches total sectional area
 Cargo light cables carrying *12* Amperes, comprised of *19* wires, each *20* L.S.G. diameter, *.0194* square inches total sectional area

DESCRIPTION OF INSULATION, PROTECTION, ETC. *all wires & cables tinned double cotton covered.
 three layers pure vulcanized Rubber two prepared tapes all vulcanized
 together then braided, Engine Room Lead covered & again braided exposed
 places lead covered braided then armoured galvanized iron wire
 Joints in cables, how made, insulated, and protected *Electrically & Mechanically perfect. Soldered
 & using resin. four pure rubber tapes. three prepared tapes then finished
 with Chatterton Compound. The lead covered are covered with lead strips*
 Are all the joints of cables thoroughly soldered, resin only having been used as a flux *yes* Are all joints in accessible positions, none being
 made in bunkers, cargo spaces, or spaces which may at any time be used for carrying cargo, stores, or baggage *all easy got at*
 Are there any joints in or branches from the cable leading from dynamo to main switch board *no*
 How are the cables led through the ship and how protected *All above deck & none in bunkers or cargo
 space Seasoned whitewood casing excepting over the armoured cables**

DESCRIPTION OF INSULATION, PROTECTION, ETC.—continued.

Are they in places always accessible *Yes*

What special protection has been provided for the cables in open alleyways or where exposed to weather or moisture *Lead covered & armoured with Galvanized Iron wire*

What special protection has been provided for the cables near galleys or oil lamps or other sources of heat *There are none near hot places*

What special protection has been provided for the cables near boiler casings *lead covered & braided*

What special protection has been provided for the cables in engine room *lead covered & braided*

How are cables carried through beams *wood Ferrules* through bulkheads, &c. *lead ferrules coated light*

How are cables carried through decks *Iron gas pipes screwed into deck & standing 2'-0" above*

Are any cables run through coal bunkers, *no* or cargo spaces *no* or spaces which may be used for carrying cargo, stores, or baggage *no*

If so, how are they protected

Are any lamps fitted in coal bunkers or spaces which may at times be used for cargo, coals, or baggage *12 lamps fitted under bridge deck are special cast iron water tight*

If so, how are the lamp fittings and cable terminals specially protected *oyster fittings with iron shut up doors*

Where are the main switches and cut outs for these lights fitted *Engine room Top Platform*

If in the spaces, how are they specially protected

Are any switches or cut outs fitted in bunkers *no*

Cargo light cables, whether portable or permanently fixed *portable* How fixed *Brass Screw Sockets*

In vessels fitted on the single wire system, how is the dynamo terminal fixed to the hull of vessel

How are the returns from the lamps connected to the hull

Are all the joints with the hull in accessible positions

VESSELS BUILT FOR CARRYING PETROLEUM.

In vessels built for carrying petroleum, are all switches and cut-outs fitted in positions not liable to the accumulation of petroleum vapour or gas

Are any switches, cut outs, or joints of cables fitted in the pump room or companion

How are the lamps specially protected in places liable to the accumulation of vapour or gas

The installation is *Double wired* supplied with a voltmeter and *Watt & ammeter* an amperemeter, fixed *main Switch Board*

The copper used is guaranteed to have a conductivity of *100%* per cent. that of pure copper.

Insulation of cables is guaranteed to have a resistance of not less than *2,000* megohms per statute mile after 24 hours' immersion in seawater.

The foregoing statements are a correct description of the Electric Light installation fitted by us on this vessel and we declare that it is at this date in good order and safe working condition.

FOR INRIG & CHESTER, LIMITED. *A. & M. Inrig* Electrical Engineers Date *16 May 1906*

COMPASSES.

Distance between dynamo or electric motors and standard compass *about 300 feet*

Distance between dynamo or electric motors and steering compass *About the same*

The nearest cables to the compasses are as follows:—

A cable carrying	<i>30</i>	Amperes	feet from standard compass	<i>40</i>	feet from steering compass
A cable carrying	<i>7</i>	Amperes	feet from standard compass	<i>10</i>	feet from steering compass
A cable carrying	<i>One</i>	Amperes	feet from standard compass	<i>9 inches</i>	feet from steering compass

Have the compasses been adjusted with and without the electric installation at work at full power

The maximum deviation due to electric currents, etc., was found to be _____ degrees on _____ course in the case of standard compass and _____ degrees on _____ course in the case of the steering compass.

PRO WORKMAN, CLARK & CO., LIMITED. *M. H. Bell* Builder's Signature Date

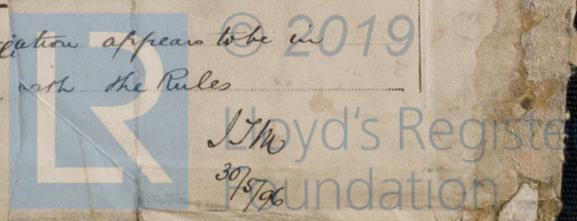
GENERAL REMARKS.

Committee's Minute

A. L. Jones
Surveyor to Lloyd's Register of British and Foreign Shipping.

This installation appears to be in accordance with the Rules

Soaly Salt



THE SURVEYORS ARE REQUESTED NOT TO WRITE ACROSS THE MARGIN.

REPORT FORM No. 13.