

Office
WED. JAN. 26 1921

No. 40685

No. in on the Iron or Steel *S.S. Mahrura.* Port belonging to *Liverpool*
Reg. Book *65669.* Built at *Rus. Moscow.* By whom *Chas. Connell & Co. Ltd.* When built *1900*
Owners *Jr. J. Brocklebank Ltd.* Owners' Address *Liverpool*
Yard No. *377* Electric Light Installation fitted by *H. T. Robertson.* When fitted *1900*

DESCRIPTION OF DYNAMO, ENGINE, ETC.

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Two dynamoes compound wound multipolar type each
dynamo coupled direct to a vertical engine 8" x 4" stroke @ 275 revs.

Capacity of Dynamo s each 135 Amperes at 100 Volts, whether continuous or alternating current continuous

Where is Dynamo fixed Eng room Starting Platform Whether single or double wire system is used double

Position of Main Switch Board " " " " having switches to groups A, B, C, D, E, F, F' of lights, &c., as below

Positions of auxiliary switch boards and numbers of switches on each _____

Positions of auxiliary switch boards and numbers of switches on each No Auxiliary Switchboards Fitted

If fuses are fitted on main switch board to the cables of main circuit Yes and on each auxiliary ~~board~~^{fuse} board 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 fuses fitted to both flow and return wires or cables of all circuits including lamp circuits *Yes*

Are the fuses of non-oxidizable metal Yes and constructed to fuse at an excess of 80 per cent over the normal current

Are all fuses 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 *Yes*

Are all switches and fuses constructed of incombustible materials and fitted on incombustible bases.

Total number of lights provided for 182 arranged in the following groups:—

A lights each of candle power requiring a total current of Amperes.

B lights each of candle power requiring a total current of Ampere

C _____ lights each of _____ candle power requiring a total current of _____ Ampere

D _____ lights each of _____ candle power requiring a total current of _____ Amperes

E. _____ lights each of _____ candle power requiring a total current of _____ Amperes

Two Mast head lights with 1 lamp each of 32 candle power requiring a total current of 2 Amperes

Two Side lights with 1 lamp each of 32 candle power requiring a total current of 2 Amperes

Seven Cargo lights of 6 of 16cb = 96 candle power, whether incandescent or arc lights Incandescent

Two Self Water Lamps! = 1000 " " each.

No Arc Lamps Fitted

Where are the switches controlling the masthead and side lights placed..... In Bridge Chart House

DESCRIPTION OF CABLES.

Main cable carrying 135 Amperes, comprised of 34 wires, each 15 S.W.G. diameter, .151 square inches total sectional area

Branch cables carrying 38 Amperes, comprised of 7 wires, each 16 S.W.G. diameter, 0.225 square inches total sectional area

Branch cables carrying 26 Amperes, comprised of 4 wires, each 18 S.W.G. diameter, .0124 square inches total sectional area

Leads to lamps carrying .6 Amperes, comprised of 1 wires, each 17 S.W.G. diameter, .00246 square inches total sectional area

Cargo light cables carrying 3.6 Amperes, comprised of 119 wires, each 38 S.W.G. diameter, 00322 square inches total sectional area

DESCRIPTION OF INSULATION, PROTECTION, ETC.

Pure Rubber, Vulcanised Rubber Taped & Lead covered
in accommodation elsewhere braided & armoured.

Joints in cables, how made, insulated, and protected

Are all the joints of cables thoroughly soldered, and the flux used not containing acids or other corrosive substances No Joints 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.

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. Forward under Bridge Deck & Tween Decks, aft thro Shaft Tunnel to poop; Armoured with Galv'd Wire Armoring

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*
or Galvanised Iron Pipes

What special protection has been provided for the cables near galleys or oil lamps or other sources of heat *Armoured & Braided*

What special protection has been provided for the cables near boiler casings *" "*

What special protection has been provided for the cables in engine room *" "*

How are cables carried through beams *Fibre or Lead Bushes* through bulkheads, &c. *w/T Glands.*

How are cables carried through decks *In Galv'd Iron Deck Pipes*

Are any cables run through coal bunkers *Yes* or cargo spaces *Yes* or spaces which may be used for carrying cargo, stores, or baggage *Yes*

If so, how are they protected *Armoured & Braided*

Are any lamps fitted in coal bunkers or spaces which may at times be used for cargo, coals, or baggage *No*

If so, how are the lamp fittings and cable terminals specially protected

Where are the main switches and fuses for these lights fitted

If in the spaces, how are they specially protected

Are any switches or fuses fitted in bunkers *No*

Cargo light cables, whether portable or permanently fixed *portable* How fixed *Fork Adaptors*

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

How are the returns from the lamps connected to the hull

Are all the joints with the hull in accessible positions

Is the installation supplied with a voltmeter *Yes*, and with *2* amperemeters, fixed on *Switchboard*

VESSELS BUILT FOR CARRYING PETROLEUM.

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

Are any switches, fuses, 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 copper used is guaranteed to have a conductivity of not less than that of the Engineering Standards Committee's standard, and the wires are protected by tinning from the sulphur compounds present in the insulating material.

Insulation of cables is guaranteed to have a resistance of not less than *600* megohms per statute mile at 60° Fahrenheit after 24 hours' immersion in water, the test being made after one minute's electrification at not less than 500 volts and while the cable is still immersed.

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.

H. Robertson & Co.

Electrical Engineers

Date *31 Dec. 20*

COMPASSES.

Distance between dynamo or electric motors and standard compass

140 Feet

Distance between dynamo or electric motors and steering compass

140 "

The nearest cables to the compasses are as follows:—

A cable carrying	<i>10</i>	Amperes	<i>6</i>	feet from standard compass	<i>6</i>	feet from steering compass
A cable carrying	<i>4.8</i>	Amperes	<i>6</i>	feet from standard compass	<i>6</i>	feet from steering compass
A cable carrying	<i>3</i>	Amperes	<i>into</i>	feet from standard compass	<i>3 into</i>	feet from steering compass

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

The maximum deviation due to electric currents, etc., was found to be *7 1/2* degrees on *every* course in the case of the standard compass and *7 1/2* degrees on *every* course in the case of the steering compass.

For *CHARLES CONNELL & CO., Limited.*

J. B. Rankin

Builder's Signature.

Date

21 Jan 1921

SECRETARY.

GENERAL REMARKS.

This installation has been fitted on board under special survey. Tested under full working conditions and satisfactory.

It is submitted that this vessel is eligible for THE RECORD. Blue Light

Red

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

Committee's Minute

GLASGOW

25 JAN 1921

Blue Light



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THE SURVEYORS ARE REQUESTED NOT TO WRITE ACROSS THIS MARGIN.

42. 24.1.21