

REPORT ON ELECTRIC LIGHTING INSTALLATION. No. 41119

Port of Glasgow. Date of First Survey 26.10.1920 Date of Last Survey 2.5.1921 No. of Visits 18.
 No. in Reg. Book 65185 on the Iron or Steel T.S.S. "MANELA" Port belonging to Glasgow
 Built at Whitinch By whom Messrs Barclay Curle & Co When built 1920
 Owners The British India Steam Nav Owners' Address _____
 Yard No. 580 Electric Light Installation fitted by Messrs A. Watson Ltd. When fitted 1921.

DESCRIPTION OF DYNAMO, ENGINE, ETC.

TOTAL KW ON VESSEL = 160 KW.

2 - 72 KW. Dynamoes (C.C.C.) direct coupled to 2 - Compound Enclosed engines 350 R.P.M.
1 - 16 KW. Aster Paraffin Set at 1000 R.P.M.
 Capacity of Dynamo 2 @ 720 : 1 @ 160 Amperes at 100 Volts, whether continuous or alternating current Continuous
 Where is Dynamo fixed 2 @ Star Side of Engine Room. Whether single or double wire system is used Double Wiring
 Position of Main Switch Board Star side of Engine Room having switches to groups 7 Circuits of lights, &c., as below
 Positions of auxiliary switch boards and numbers of switches on each 1 5 Circuit placed in Emergency Dynamo House on Promenade Deck.

If fuses are fitted on main switch board to the cables of main circuit Yes and on each auxiliary switch 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 100 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 Yes.

Total number of lights provided for 133 lamps ^{6 motors} or 643 lbs arranged in the following groups:—
 A Turning Motors lights each of 2 @ 6 HP candle power requiring a total current of 90.00 Amperes
 B Saloon & Poole's Heater lights each of 8 @ 1500 W. candle power requiring a total current of 170.00 Amperes
 C Emergency Sw Bd lights each of 15540 Watts. candle power requiring a total current of 155.40 Amperes
 D 1st Cl & Officers Heater lights each of 4 @ 1500 W. & 17 @ 5000 W. candle power requiring a total current of 320.00 Amperes
 E 1st & 2nd Cl Accom. lights each of 69 @ 48 W. & 67 @ 10 W. candle power requiring a total current of 98.00 Amperes
2 Mast head light with 1 lamps each of 32 candle power requiring a total current of 2.56 Amperes
2 Side light with 1 lamps each of 32 candle power requiring a total current of 2.56 Amperes
48 Cargo lights of 1000 W. 16 CP candle power, whether incandescent or arc lights Incandescent

If arc lights, what protection is provided against fire, sparks, &c. — — —

Where are the switches controlling the masthead and side lights placed? In the wheelhouse.

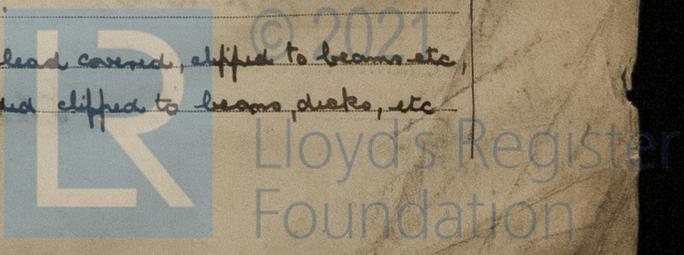
DESCRIPTION OF CABLES.

Main cable carrying 720 Amperes, comprised of 122 wires, each 12 S.W.G. diameter, 1.0000 square inches total sectional area
 Branch cables carrying 95.16 Amperes, comprised of 19 wires, each 14 S.W.G. diameter, .1095 square inches total sectional area
 Branch cables carrying 45.00 Amperes, comprised of 7 wires, each 16 S.W.G. diameter, .0225 square inches total sectional area
 Leads to lamps carrying .20 Amperes, comprised of 3 wires, each 22 S.W.G. diameter, .0020 square inches total sectional area
 Cargo light cables carrying 1.60 Amperes, comprised of 70 wires, each .0076 S.W.G. diameter, --- square inches total sectional area

DESCRIPTION OF INSULATION, PROTECTION, ETC.

In the accommodation, crew, & Public Rooms cables are 600 meg CMA 59 R lead covered.
In the Machinery, Boiler & Cargo spaces cables are 600 meg CMA lead covered Armoured & Braided.
* Main cables to generators are insulated with paper.
 Joints in cables, how made, insulated, and protected No joints in any main cable. Joints in lighting cables are made through high voltage porcelain extensions; the whole protected by a substantial wire cover.

Are all the joints of cables thoroughly soldered, and the flux used not containing acids or other corrosive substances — — — 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 Yes.
 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 In accommodation, cables are lead covered, clipped to beams etc. In machinery and Cargo spaces, cables are lead covered, armoured & Braided clipped to beams, decks, etc.



DESCRIPTION OF INSULATION, PROTECTION, ETC.—continued.

Are they in places always accessible *No. Circuit feeders for forecabin run through Star Bunker*

What special protection has been provided for the cables in open alleyways or where exposed to weather or moisture *Lead Covered, Armoured & Braided Cable*

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

What special protection has been provided for the cables near boiler casings *Lead Covered Armoured & Braided Cable*

What special protection has been provided for the cables in engine room *Lead Covered Armoured & Braided Cable*

How are cables carried through beams *in Fibre Ferrules* through bulkheads, &c. *in W.T. stuffing glands*

How are cables carried through decks *in W.T. Deck Tubes standing 16" above deck level*

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 *Lead Covered armoured & Braided cable clipped to under side of deck*

Are any lamps fitted in coal bunkers or spaces which may at times be used for cargo, coals, or baggage *Yes. In No. 1 Tween Decks only (4)*

If so, how are the lamp fittings and cable terminals specially protected *Special Cargo Fittings (heavy construction)*

Where are the main switches and fuses for these lights fitted *in Forecabin Distribution Box*

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

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

Is the installation supplied with a voltmeter *Yes*, and with an amperemeter *Yes*, 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.

FOR ARCHD. WATSON & CO., LTD.

Electrical Engineers

Date 20-5-21.

COMPASSES.

Distance between dynamo or electric motors and standard compass 165 feet.

Distance between dynamo or electric motors and steering compass 160 feet.

The nearest cables to the compasses are as follows:—

A cable carrying	<u>11.36</u>	Amperes	<u>6</u>	feet from standard compass	<u>4</u>	feet from steering compass
A cable carrying	<u>1.28</u>	Amperes	<u>4</u>	feet from standard compass	<u>4</u>	feet from steering compass
A cable carrying	—	Amperes	—	feet from standard compass	—	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 nil degrees on any course in the case of the standard compass and nil degrees on any course in the case of the steering compass.

H. Screey

Builder's Signature.

Date 21st May 1921

GENERAL REMARKS.

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

It is submitted that

this vessel is eligible for

THE RECORD.

FEE 134-10-0

*Elec Light Reel
23/5/21
27/1/21
30/3/21*

J. S. Rankin.

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

Committee's Minute

GLASGOW 24 MAY 1921

Elec Light



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THE SURVEYORS ARE REQUESTED NOT TO WRITE ACROSS THIS MARGIN.

*H.C.
23-5-21*

Im.11.13-Transfer.