

REPORT ON ELECTRIC LIGHTING INSTALLATION. No. 16,008.

Port of Reith Date of First Survey 4th May 1921 Date of Last Survey 28th April 1921 No. of Visits 13
 No. in Reg. Book on the Iron or Steel Sailing Vessel "Kopenhagen" Port belonging to Kopenhagen
 Built at Reith By whom Ramage & Ferguson Ltd When built 1921
 Owners East Asiatic Co Ltd Owners' Address Copenhagen
 Yard No. 256 Electric Light Installation fitted by Telford Grier & Mackay Ltd When fitted 1921

DESCRIPTION OF DYNAMO, ENGINE, ETC.

Engine Semi Diesel crude oil vertical single cylinder mounted on extended
bedplate to protected type compound wound multipolar dynamo
 Capacity of Dynamo 100 Amperes at 100 Volts, whether continuous or alternating current continuous
 Where is Dynamo fixed On platform in Engine Room Whether single or double wire system is used Double
 Position of Main Switch Board Beside dynamo having switches to groups Five of lights, &c., as below
 Positions of auxiliary switch boards and numbers of switches on each no auxiliary switchboards

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 — and at each position where a cable is branched or reduced in size none 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 50 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 156 arranged in the following groups:—

A	<u>Aft</u>	<u>58</u> lights each of	<u>30</u> Watts	<u>candle power</u> requiring a total current of	<u>17.40</u> Amperes
B	<u>Midships</u>	<u>49</u> lights each of	<u>30</u> Watts	<u>candle power</u> requiring a total current of	<u>14.70</u> Amperes
C	<u>Engine Rm</u>	<u>15</u> lights each of	<u>30</u> Watts	<u>candle power</u> requiring a total current of	<u>4.50</u> Amperes
D	<u>Navigation</u>	<u>5</u> lights each of	<u>32</u>	<u>candle power</u> requiring a total current of	<u>5.00</u> Amperes
E	<u>Cargo</u>	<u>24</u> lights each of	<u>16</u>	<u>candle power</u> requiring a total current of	<u>12.00</u> Amperes
2	<u>Mast head lights</u> with <u>1</u> lamp each of	<u>32</u>	<u>candle power</u> requiring a total current of	<u>—</u> Amperes	
2	<u>Side lights</u> with <u>1</u> lamps each of	<u>32</u>	<u>candle power</u> requiring a total current of	<u>—</u> Amperes	
4	<u>Cargo lights</u> of	<u>96</u>	<u>candle power</u> , whether incandescent or arc lights	<u>—</u>	

If arc lights, what protection is provided against fire, sparks, &c. no arc lamps

Where are the switches controlling the masthead and side lights placed In chart Room

DESCRIPTION OF CABLES.

Main cable carrying 100 Amperes, comprised of 19 wires, each .083 S.W.G. diameter, 0.100 square inches total sectional area
 Branch cables carrying 17.40 Amperes, comprised of 7 wires, each .064 S.W.G. diameter, 0.225 square inches total sectional area
 Branch cables carrying 4.50 Amperes, comprised of 7 wires, each .036 S.W.G. diameter, 0.007 square inches total sectional area
 Leads to lamps carrying 2 Amperes, comprised of 3 wires, each .029 S.W.G. diameter, 0.002 square inches total sectional area
 Cargo light cables carrying 3 Amperes, comprised of 3 wires, each .036 S.W.G. diameter, 0.003 square inches total sectional area

DESCRIPTION OF INSULATION, PROTECTION, ETC.

Cables throughout vessel are V.I.R insulated, and protected in accommodation by lead sheathing. In holds and where cables are run on steel decks, steel armouring, braiding & compounding
 Joints in cables, how made, insulated, and protected no joints

Are all the joints of cables thoroughly soldered, and the flux used not containing acids or other corrosive substances none 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 none

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 Cables are led through ship through beams and clipped up closely to deck

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 sheathing and armoring + braiding

What special protection has been provided for the cables near galleys or oil lamps or other sources of heat Armoured braided etc.

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

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

How are cables carried through beams Armoured braided etc through bulkheads, &c. in Watertight glands.

How are cables carried through decks Watertight Deck Tubes.

Are any cables run through coal bunkers no 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 & compounded

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 —

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.

Jelford Grier Machay & Co Electrical Engineers Date 3/10/21

COMPASSES.

Distance between dynamo or electric motors and standard compass —

Distance between dynamo or electric motors and steering compass —

The nearest cables to the compasses are as follows:—

A cable carrying	<u>14</u> Amperes	<u>22</u> feet from standard compass	<u>16</u> feet from steering compass
A cable carrying	<u>5</u> Amperes	<u>6</u> feet from standard compass	<u>6</u> feet from steering compass
A cable carrying	<u>25</u> Amperes	<u>Fitted inside</u> feet from standard compass	<u>fitted inside</u> 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 all course in the case of the standard compass and nil degrees on all course in the case of the steering compass.

RAMAGE & FERGUSON, LIMITED

Alec Ferguson

Builder's Signature. Date 4 October 1921

GENERAL REMARKS.

This installation has been well fitted, and proved satisfactory on trial

It is submitted that this vessel is eligible for THE REDUCTION OF ELECTRIC LIGHT

£10.0.0

17/10/21

A. T. Thomas
Surveyor to Lloyd's Register of British and Foreign Shipping.

Committee's Minute

TUE. 13 OCT. 1921

TUE. NOV. 4 1921



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