

WEL DEC 14 1921

## REPORT ON ELECTRIC LIGHTING INSTALLATION. No. 1929.

Port of Bartow-in-Furness Date of First Survey 14<sup>th</sup> Aug Date of Last Survey 5<sup>th</sup> Dec 1921 No. of Visits 39  
 No. in on the ~~Iron or Steel~~ T.S.M.V. "Scottish Maiden" Port belonging to London  
 Reg. Book 30321 Built at Bartow-in-Furness By whom Vickers Ltd When built 1921  
 Owners Jankers Ltd Owners' Address 37/41 Gracechurch St. London E.C.3  
 Yard No. 581 Electric Light Installation fitted by Vickers Ltd When fitted 1921

## DESCRIPTION OF DYNAMO, ENGINE, ETC.

Two Laurence Scott's Compound wound Dynamos, each of 50 kw, direct coupled to two Matthew Paul Reciprocating Steam Engines  
 Capacity of Dynamos each 455 Amperes at 110 ✓ 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 On platform in Engine Room having switches to groups 13 in number of lights, &c., as below  
 Positions of auxiliary switch boards and numbers of switches on each None fitted

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 None fitted 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 251 arranged in the following groups:—

A	<u>9</u>	lights each of <u>2 1/2</u>	candle power requiring a total current of <u>.72</u>	Amperes
B	<u>12</u>	lights each of <u>6-6</u>	" " " " " " <u>1.15</u>	"
		lights each of <u>16</u>	candle power requiring a total current of <u>6.0</u>	Amperes
C	<u>162</u>	lights each of <u>30 watts</u>	candle power requiring a total current of <u>44.0</u>	Amperes
D	<u>48</u>	lights each of <u>60</u> "	candle power requiring a total current of <u>26.0</u>	Amperes
	<u>4</u>	" " " <u>100</u> "	" " " " " " <u>3.6</u>	"
E	<u>6</u>	lights each of <u>300</u> "	candle power requiring a total current of <u>16.4</u>	Amperes
	<u>2</u>	Mast head light with <u>1</u> lamps each of <u>32</u>	candle power requiring a total current of <u>2.0</u>	Amperes
	<u>2</u>	Side light with <u>1</u> lamps each of <u>32</u>	candle power requiring a total current of <u>2.0</u>	Amperes
	<u>5</u>	Cargo lights of <u>360 watts</u>	candle power, whether incandescent or arc lights <u>Incandescent</u>	

If arc lights, what protection is provided against fire, sparks, &c. No arc lights fitted

Where are the switches controlling the masthead and side lights placed Wheel house

## DESCRIPTION OF CABLES.

Main cable carrying 455 Amperes, comprised of 91 wires, each 12 S.W.G. diameter, .75 ✓ square inches total sectional area  
 Branch cables carrying 124 Amperes, comprised of 34 wires, each 15 S.W.G. diameter, .15 ✓ square inches total sectional area  
 " " " 118 " " " 19 " " " 14 S.W.G. diameter, .106 ✓ square inches total sectional area  
 Branch cables carrying 82 Amperes, comprised of 19 wires, each 16 S.W.G. diameter, .07 ✓ square inches total sectional area  
 Leads to lamps carrying 40 Amperes, comprised of 3 wires, each 22 S.W.G. diameter, .0225 ✓ square inches total sectional area  
 Cargo light cables carrying 3.3 Amperes, comprised of 72 wires, each 36 S.W.G. diameter, .00324 ✓ square inches total sectional area

## DESCRIPTION OF INSULATION, PROTECTION, ETC.

600 Megohm Association Grade V.I.R. insulated & lead covered. On weather decks & in machinery spaces the lead covered cables are further protected by steel wire armouring & braiding, or by steel conduit as convenient.  
 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 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 No joints  
 Are there any joints in or branches from the cable leading from dynamo to main switch board No joints  
 How are the cables led through the ship, and how protected Blipped to decks & bulkheads. Main cables armoured. Where subject to mechanical injury, lead covered cables are run in steel conduit.



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 *Steel wire armouring & braiding, or fitted in conduit as convenient.*

What special protection has been provided for the cables near galleys or oil lamps or other sources of heat *These places avoided.*

What special protection has been provided for the cables near boiler casings *None so fitted.*

What special protection has been provided for the cables in engine room *Armoured or run in conduit.*

How are cables carried through beams *Through lead bushed holes* through bulkheads, &c. *Packed glands or bushed holes*

How are cables carried through decks *Watertight deck tubes.*

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

If so, how are they protected *Lead covered & armoured*

Are any lamps fitted in coal bunkers or spaces which may at times be used for cargo, coals, or baggage *Yes*

If so, how are the lamp fittings and cable terminals specially protected *No switches or fuses in room, lamp fittings watertight*

Where are the main switches and fuses for these lights fitted *In alleyway*

If in the spaces, how are they specially protected *None so fitted*

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 *Double wire system.*

How are the returns from the lamps connected to the hull *Double wire system*

Are all the joints with the hull in accessible positions *No joints*

Is the installation supplied with a voltmeter *From 90 to 130 Volts.* and with an amperemeter *Two 0-600 Amps. 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 *Yes*

Are any switches, fuses, or joints of cables fitted in the pump room or companion *Special gastight fitting fitted above pump room entrance.*

How are the lamps specially protected in places liable to the accumulation of vapour or gas *Gastight fittings.*

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 VICKERS LIMITED.

*John Barry*  
DIRECTOR

Electrical Engineers

Date *13th December 1921.*

COMPASSES.

Distance between dynamo or electric motors and standard compass *250 ft.*

Distance between dynamo or electric motors and steering compass *254 ft.*

The nearest cables to the compasses are as follows:—

A cable carrying	Amperes	feet from standard compass	feet from steering compass
<i>7</i>	<i>9</i>	<i>10</i>	
<i>15</i>	<i>9</i>	<i>17</i>	

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.

FOR VICKERS LIMITED.

*John Barry*

Builder's Signature.

Date *13th December 1921.*

GENERAL REMARKS.

*This installation has been efficiently fitted on board, & on completion it was tried under full load & found satisfactory. Governing tests were carried out on both sets, & the governors were found to be sensitive & efficient when the full load was put out.*

Fee: £31-10-0

*applied for 19/12/21. paid 22.12.21*

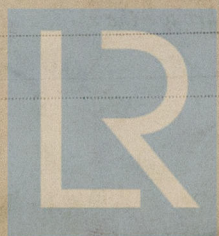
*Elec. Light. L.C. 15/12/21.*

*John Houston.*

Surveyor to Lloyd's Register of Shipping.

Committee's Minute

*10 DEC. 1921*



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THE SURVEYORS ARE REQUESTED NOT TO WRITE ACROSS THIS MARGIN.