

REPORT ON ELECTRIC LIGHTING INSTALLATION. No. 10920.

Port of Middlesbrough Date of First Survey White Date of Last Survey Building No. of Visits
 No. in on the ~~Iron~~ Steel As "Delaware" Port belonging to Lonsberg.
 Reg. Book 18574 Built at Haverton Hill on Yess. By whom Hurness Shipbuilding Co. Ltd. When built 1920.
 Owners Acting Mgrs Mexico Gulf. Minin Owners' Address Lonsberg.
 Yard No. 21 Electric Light Installation fitted by Hurness Shipbuilding Co. Ltd. When fitted 1920.

DESCRIPTION OF DYNAMO, ENGINE, ETC.

Dynamo, open type, shunt wound. by Sunderland Forge Co. Maker N° 30144.
 Engine, open single cylinder type, 330 R.P.M. " " " " " 30145.
 Capacity of Dynamo 150 Amperes at 100 Volts, whether continuous or alternating current continuous
 Where is Dynamo fixed Starboard side of main engine room Whether single or double wire system is used double
 Position of Main Switch Board Starboard room, "tween decks" portside having switches to groups A, B, C, D, & E. of lights, &c., as below
 Positions of auxiliary ~~boards~~ ^{FUSE} boards and numbers of switches on each "A," Chart House, (9 switches), "B," Saloon & Pantry
(no switches), & engine room (7 switches) "C," Lower crew space aft, (no switches) "D," Engine room
(10 switches). "E," Starboard room (no switches)
 If fuses are fitted on main switch board to the cables of main circuit yes and on each auxiliary ~~switch~~ ^{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 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 Lead fuses fitted
 Are all switches and fuses constructed of incombustible materials and fitted on incombustible bases yes
 Total number of lights provided for 184 arranged in the following groups:—
 A Navigation, 4 lights each of 32 C.P. candle power requiring a total current of 8.7 Amperes
560 lights each of 8 C.P.
 B Midship 36 lights each of 16 C.P. candle power requiring a total current of 36.6 Amperes
30 watt
 C aft, 33 lights each of 16 C.P. candle power requiring a total current of 21.6 Amperes
32 lights each of 32
 D Engine Room, 3 lights each of 600 C.P. candle power requiring a total current of 25.2 Amperes
27 lights each of 16 C.P.
 E Cargo 5 lights each of 600 candle power requiring a total current of 17 Amperes
2 Must head light with 1 lamps each of 32 candle power requiring a total current of included in "A" Amperes
2 Side light with 1 lamps each of 32 candle power requiring a total current of " " "A" Amperes
5 Cargo lights of 600 candle power, whether incandescent or arc lights incandescent, included in "E"

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

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

DESCRIPTION OF CABLES.

Main cable carrying 110 Amperes, comprised of 37 wires, each 14 S.W.G. diameter, .1824 square inches total sectional area
 Branch cables carrying 36.6 Amperes, comprised of 19 wires, each .064 S.W.G. diameter, .06 square inches total sectional area
 Branch cables carrying 25.2 Amperes, comprised of 7 wires, each .064 S.W.G. diameter, .0225 square inches total sectional area
 Leads to lamps carrying 5 Amperes, comprised of 3 wires, each .029 S.W.G. diameter, .002 square inches total sectional area
 Cargo light cables carrying 5 Amperes, comprised of 7 wires, each .036 S.W.G. diameter, .007 square inches total sectional area
110 wires, each .0076 S.W.G. diameter, .007

DESCRIPTION OF INSULATION, PROTECTION, ETC.

Lead covered cables in cabin, saloon, and lead covered, armoured & braided cables
in all exposed positions including engine room etc.

Joints in cables, how made, insulated, and protected Porcelain extensions protected by cast iron covers.

Are all the joints of cables thoroughly soldered, and the flux used not containing acids or other corrosive substances No flux used, joints being mechanical 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 clipped under shelter deck, protected by being lead
covered & armoured.



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DESCRIPTION OF INSULATION, PROTECTION, ETC.—continued.

Are they in places always accessible *Yes, except when tween decks are full of cargo.*

What special protection has been provided for the cables in open alleyways or where exposed to weather or moisture, *Armoured cables used where exposed.*

What special protection has been provided for the cables near galleys or oil lamps or other sources of heat *Lead covered armoured cable used.*

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

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

How are cables carried through beams *Lead bushes for lead covered cables through bulkheads, &c. Watertight glands.*

How are cables carried through decks *iron deck tubes 1 metre long.*

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

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 *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.

P. S. Glover Electrical Engineer Date *6th Jan 21.*

COMPASSES.

Distance between dynamo or electric motors and standard compass *approx. 150 ft*

Distance between dynamo or electric motors and steering compass *do do do.*

The nearest cables to the compasses are as follows:—

A cable carrying	Amperes	Distance	feet from standard compass	feet from steering compass
<i>3</i>	<i>inside</i>	<i>10</i>	<i>10</i>	
<i>8.7</i>	<i>6</i>	<i>10</i>	<i>10</i>	
<i>—</i>	<i>—</i>	<i>—</i>	<i>—</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 *all* courses in the case of the standard compass and *nil* degrees on *all* courses in the case of the steering compass.

W. C. Quarré Builder's Signature. Date *6th Jan 1921.*

GENERAL REMARKS.

This installation has been satisfactorily fitted on board and tried under working conditions.

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

ECM 20/1/21

W. C. Quarré Surveyor to Lloyd's Register of Shipping.

Committee's Minute

FRI. JAN. 28 1921

THE SURVEYORS ARE REQUESTED NOT TO WRITE ACROSS THIS MARGIN.