

# REPORT ON ELECTRIC LIGHTING INSTALLATION. No.

Port of Hartlepool Date of First Survey 3.5.21 Date of Last Survey 28.10.21 No. of Visits 7  
 No. in on the Iron or Steel S.S. "Louisiana" Port belonging to Liverpool  
 Reg. Book Built at Hartlepool By whom Messrs Irvine's Shipbuilders When built 1921  
 Owners Messrs Furness Withy Co. Owners' Address Royal Liver Bldgs, Liverpool  
 Yard No. 586 Electric Light Installation fitted by Messrs Campbell & Teherwood Ltd When fitted 1921

## DESCRIPTION OF DYNAMO, ENGINE, ETC.

Two Campbell & Teherwood 4 pole Compound Wound Dynamos, 100 Volts 20 K.W. and 100 Volts 7½ K.W. driven by "Howard" enclosed Engines.

Capacity of Dynamo 1.200 & 1.75 Amperes at 100 Volts, whether continuous or alternating current continuous

Where is Dynamo fixed In recess of Engine Room Whether single or double wire system is used Double.

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

Positions of auxiliary switch boards and numbers of switches on each A, b, c, d, e, f, g, h, i, j, k, l, m, n, o, p, q, r, s, t, u, v, w, x, y, z  
Alleyway (6) A/S (6) B Engine Room (2) Forward Mast House (4) Main Mast House (4) C Engine Room (8) Boiler Room (6)

If cut outs 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 cut outs fitted to both flow and return wires or cables of all circuits including lamp circuits Yes

Are the cut outs of non-oxidizable metal Yes and constructed to fuse at an excess of 50% per cent over the normal current

Are all cut outs 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 cut-outs constructed of incombustible materials and fitted on incombustible bases Yes

Total number of lights provided for 258 arranged in the following groups :-

A Accommodation & Navigation	175 lights each of 4.16 + 32	candle power requiring a total current of	75	Amperes
B Cargo	12 lights each of 300	candle power requiring a total current of	36	Amperes
C Machinery Spaces	45 lights each of 16	candle power requiring a total current of	51	Amperes
D Ash Hoist Co. 1	lights each of —	candle power requiring a total current of	40	Amperes
E Ash Hoist Co. 2	lights each of —	candle power requiring a total current of	40	Amperes
F Mast head light with 2 lamps each of 32	2 lamps each of 32	candle power requiring a total current of	50	"
2 Side light with 2 lamps each of 32	2 lamps each of 32	candle power requiring a total current of	2	Amperes
12 Cargo lights of 600	Each 600	candle power, whether incandescent or arc lights	Incandescent	

If arc lights, what protection is provided against fire, sparks, &c. None fitted

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

## DESCRIPTION OF CABLES.

Main cable carrying	200 Amperes, comprised of	19 wires, each 15 L.S.G. diameter,	.0765 square inches total sectional area
Branch cables carrying	56 Amperes, comprised of	7 wires, each 15 L.S.G. diameter,	.0282 square inches total sectional area
Branch cables carrying	40 Amperes, comprised of	7 wires, each 16 L.S.G. diameter,	.02227 square inches total sectional area
Leads to lamps carrying	3 Amperes, comprised of	3 wires, each 20 L.S.G. diameter,	.003 square inches total sectional area
Cargo light cables carrying	1.5 Amperes, comprised of	12 wires, each 30 L.S.G. diameter,	.0015 square inches total sectional area

## DESCRIPTION OF INSULATION, PROTECTION, ETC.

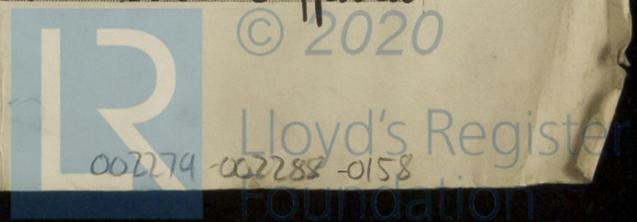
Pure and Vulcanised Rubber and Rubber Tape, the whole vulcanised together and lead sheathed or wire armoured, or lead sheathed and wire armoured and braided.

Joints in cables, how made, insulated, and protected Done except mechanical.

Are all the joints of cables thoroughly soldered, resin only having been used as a flux — 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 Do.

How are the cables led through the ship, and how protected Lead sheathed armoured braided clipped to under side of Decks, or Bulkheads. Lead sheathed cables clipped in Saloon Cabins.



**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 Cables enclosed in Galvanised Iron pipes.

What special protection has been provided for the cables near galleys or oil lamps or other sources of heat Lead covered, Armoured Braided Cables.

What special protection has been provided for the cables near boiler casings As above.

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

How are cables carried through beams Through holes bushed with lead through bulkhead, &c. W.T. Glands.

How are cables carried through decks Through Galvanised Iron or Brass Tubes.

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 and Steel wire Armoured cables.

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 cut outs for these lights fitted \_\_\_\_\_

If in the spaces, how are they specially protected \_\_\_\_\_

Are any switches or cut outs 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 \_\_\_\_\_

The installation is Yes supplied with a voltmeter and Yes an amperemeter, fixed on Main Board.

**VESSELS BUILT FOR CARRYING PETROLEUM.**

In vessels built for carrying petroleum, are all switches and cut-outs fitted in positions not liable to the accumulation of petroleum vapour or gas \_\_\_\_\_

Are any switches, cut outs, 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 100 per cent. that of pure copper.

Insulation of cables is guaranteed to have a resistance of not less than 2500 megohms per statute mile after 24 hours' immersion in seawater.

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.

**CAMPBELL & ISHERWOOD LTD.**

P. O'Riscoll

Electrical Engineers

Date 15<sup>th</sup> Nov. 1921.

**COMPASSES.**

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

Distance between dynamo or electric motors and steering compass " "

The nearest cables to the compasses are as follows:—

A cable carrying <u>9</u> Amperes	<u>10</u> feet from standard compass	<u>10</u> feet from steering compass
A cable carrying <u>20</u> Amperes	<u>50</u> feet from standard compass	<u>50</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 no degrees on any course in the case of the standard compass and no degrees on any course in the case of the steering compass.

**FOR IRVINE'S SHIP BUILDING & DRY DOCKS CO. LIMITED**

[Signature]

Builder's Signature.

Date November 21/21

**GENERAL REMARKS.**

Managing Director

This installation has been fitted under survey. The materials and workmanship are good. On completion it was found satisfactory under full working conditions.

Fee £21.10.0

Applied for 22/11/21. Paid.

R.D. Shilston

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

Committee's Minute \_\_\_\_\_

THE SURVEYORS ARE REQUESTED NOT TO WRITE ACROSS THIS MARGIN.

REPORT FORM No. 15-2703A.



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