

REPORT ON ELECTRIC LIGHTING INSTALLATION. No. 15,876.

Port of Leith Date of First Survey 5th Sept Date of Last Survey 2nd Dec 1920 No. of Visits 5
 on the Iron or Steel "Ardenza" Port belonging to Leith
 Built at Leith By whom Hawthorn & Co Ltd Leith When built 1920
 Owners J. & C. Stenroos & Co Ltd Owners' Address 2 St Andrew's Square Edinburgh
 No. 180 Electric Light Installation fitted by Hawthorn & Co Ltd Leith When fitted 1920

DESCRIPTION OF DYNAMO, ENGINE, ETC.

Open fronted Vertical Single Cylinder Eng. by Robt & Co Lincoln direct coupled
to a compound wound Dynamo by Campbell & Schenwood
 Capacity of Dynamo 54 Amperes at 110 Volts, whether continuous or alternating current Continuous
 Is Dynamo fixed Engine Room (Starboard side) Whether single or double wire system is used double
 Position of Main Switch Board beside Dynamo having switches to groups four of lights, &c., as below
 Positions of auxiliary switch boards and numbers of switches on each Chart room 8 switches Forecastle 2 switches
Turning Gear Platform 6 switches Engine Room beside main board 4 switches

Are fuses 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
 Is the vessel 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 there 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

Number of lights provided for 83 arranged in the following groups:—
Chart room & Forecastle 31 lights each of 25 @ 32 + 4 @ 8 candle power requiring a total current of 14.2 Amperes
Engine Room & Accom 24 lights each of 27 @ 30 + 2 @ 200 candle power requiring a total current of 9.5 Amperes
Cargo holdsties 24 lights each of 16 candle power requiring a total current of 15.4 Amperes
lights each of candle power requiring a total current of Amperes
lights each of candle power requiring a total current of 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
Cargo holdsties & Mast lights Cargo lights of 8-16 CP in each cluster + candle power, whether incandescent or arc lights incandescent.
1-200 CP in each Mast light.
 Are there lights, what protection is provided against fire, sparks, &c.

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

DESCRIPTION OF CABLES.

Each cable carrying 54 Amperes, comprised of 19 wires, each 16 S.W.G. diameter, .061 square inches total sectional area
 Each cable carrying 5 Amperes, comprised of 3 wires, each 18 S.W.G. diameter, .0053 square inches total sectional area
 Each cable carrying 15 Amperes, comprised of 7 wires, each 17 S.W.G. diameter, .017 square inches total sectional area
 Cables to lamps carrying 1 Amperes, comprised of 1 wires, each 18 S.W.G. diameter, .00181 square inches total sectional area
 Light cables carrying 5 Amperes, comprised of 110 wires, each 36 S.W.G. diameter, .0048 square inches total sectional area

DESCRIPTION OF INSULATION, PROTECTION, ETC.

Lead covered India Rubber Lead covered wires in accommodation & Crew Quarters
" " " " " Steel armoured wires overall in Cargo
hold & machinery space
 How are the cables, how made, insulated, and protected Soldered insulated with Rubber & waterproof tapes protected
in wood blocks recessed to suit or taken into porcelain joint not fixed in wood
block and where necessary covered with black Iron Oxide.
 Are all the joints of cables thoroughly soldered, and the flux used not containing acids or other corrosive substances Yes 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 No
 How are the cables led through the ship, and how protected under side of main & R. & Q. Decks clipped hard to Gun
by 3/8" Lapped screws. Turn vulcanized steel armoured lead covered cable overall.

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 ✓

What special protection has been provided for the cables near galleys or oil lamps or other sources of heat Arranged cable

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

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

How are cables carried through beams in lead bushed hole through bulkheads, &c. Bulkhead glands

How are cables carried through decks Iron deck pipes

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 carried through iron pipe in bunker, Ammunt. Lead covered cables in cargo space

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 main board

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 2500 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.

HAWTHORNS & CO., LIMITED.

G. H. Murray

Electrical Engineers

Date 7/12/20.

COMPASSES.

Distance between dynamo or electric motors and standard compass 62 ft

Distance between dynamo or electric motors and steering compass 44 ft

The nearest cables to the compasses are as follows:—

A cable carrying	Amperes	feet from standard compass	feet from steering compass
6	3-0	1-6	1-6
6	3-0	1-6	1-6

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.

HAWTHORNS & CO., LIMITED.

G. H. Murray

Builder's Signature.

Date 7/12/20.

GENERAL REMARKS.

The installation has been well fitted and proved satisfactory on trial

It is submitted that

this vessel is eligible for

TEN RECORD.

Elec Light
S. T. Thorne
14/12/20

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

Committee's Minute FRI. 17 DEC. 1920