

REPORT ON ELECTRIC LIGHTING INSTALLATION. No. 8114.

Port of Dundee Date of First Survey 6th Sept. 1918 Date of Last Survey 21st Nov. 1918 No. of Visits 11.
 No. in Reg. Book on Iron or Steel S.S. "War Dirk" Port belonging to
 Built at Dundee By whom Caldon Shipbuilding & Eng. Co., Ltd. built 1918
 Owners Workman, Arbuckle & Mackinnon Owners' Address 96 Buchanan St., Glasgow.
 Yard No. 260 Electric Light Installation fitted by W.C. Martin & Co. Glasgow. When fitted 1918

DESCRIPTION OF DYNAMO, ENGINE, ETC.

One 10 kw. Compound Wound Dynamo direct coupled to an open type Inverted Vertical Single-Cylinder Steam Engine.

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

Where is Dynamo fixed Bottom platform in Engine Room Whether single or double wire system is used double

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

Positions of auxiliary ^{fuse} switch boards and numbers of ^{fuses} switches on each 8 way in Chart Room, 6 way in Saloon, Engine Room 8 way, Steering Engine Room 8 way, 4 way, & 3 way. Accommodation Aft 8 way.

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 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 yes

Are all switches and fuses constructed of incombustible materials and fitted on incombustible bases yes

Total number of lights provided for 125 arranged in the following groups:—

A Accommodation	60 lights each of	20 watt & 16 cp.	candle power requiring a total current of	14.2	Amperes
B Engine Room	24 lights each of	16	candle power requiring a total current of	13.4	Amperes
C Cluster	24 lights each of	16	candle power requiring a total current of	13.4	Amperes
D Navigation	17 lights each of	16, 8, 5 & 2 1/2	candle power requiring a total current of	6.3	Amperes
E Wireless Supply	lights each of	—	candle power requiring a total current of	15	Amperes
1 Mast head light with	1 lamps each of	2 1/2	candle power requiring a total current of	.09	Amperes
2 Side light with	2 lamps each of	8 & 5	candle power requiring a total current of	.46	Amperes
4 Cargo lights of		96	candle power, whether incandescent or arc lights	incandescent	

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

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

DESCRIPTION OF CABLES.

Main cable carrying	100 Amperes, comprised of	37 wires, each	15 S.W.G. diameter,	.150 square inches total sectional area
Branch cables carrying	14.2 Amperes, comprised of	19 wires, each	20 S.W.G. diameter,	.019 square inches total sectional area
Branch cables carrying	6.3 Amperes, comprised of	7 wires, each	18 S.W.G. diameter,	.0125 square inches total sectional area
Leads to lamps carrying	2.3 Amperes, comprised of	1 wires, each	16 S.W.G. diameter,	.0032 square inches total sectional area
Cargo light cables carrying	3.36 Amperes, comprised of	108 wires, each	38 S.W.G. diameter,	.0048 square inches total sectional area

DESCRIPTION OF INSULATION, PROTECTION, ETC.

H.C. Copper Wire tinned, insulated with pure & vulcanised rubber & tape, the whole being vulcanised together, taped, braided & compounded or sheathed with lead or steel armour.

Joints in cables, how made, insulated, and protected

No joints except on terminals.

Are all the joints of cables thoroughly soldered, and the flux used not containing acids or other corrosive substances — 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 Lead covered cable in Accommodation, Armoured cable in Engine Room, Bunkers, & Cargo spaces.

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 covering.

What special protection has been provided for the cables near galleys or oil lamps or other sources of heat Steel Armour.

What special protection has been provided for the cables near boiler casings Cables run in Metal Tubes.

What special protection has been provided for the cables in engine room Armoured cable run in Metal Tubes.

How are cables carried through beams bushed where unarmoured through bulkheads, &c. W. & Glands.

How are cables carried through decks Metal tubes fitted watertight to deck.

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 Steel Armoured cables clipped openly protected by beams.

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 Lark connections.

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.

W. C. Martin, & Co.

Electrical Engineers

Date 21st Nov 1918.

COMPASSES.

Distance between dynamo or electric motors and standard compass 60 feet from Dynamo

Distance between dynamo or electric motors and steering compass 55 feet from Dynamo

The nearest cables to the compasses are as follows:—

A cable carrying	Amperes	feet from standard compass	feet from steering compass
<u>56</u>	<u>10</u>	<u>1</u>	<u>1</u>
<u>56</u>	<u>1</u>	<u>10</u>	<u>10</u>
<u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>

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 a certain course in the case of the standard compass and Nil degrees on the same course in the case of the steering compass.

Builder's Signature. Date

GENERAL REMARKS. The electrical installation of this vessel has been fitted on board under special survey. The materials & workmanship are good. It has been examined under full working conditions & found in good order; and is eligible in my opinion to have award of Electric Light.

It is submitted that this vessel is eligible for THE RECORD. Elec. light.

John H. Mackinday
Surveyor to Lloyd's Register of Shipping.

Committee's Minute

THE SURVEYORS ARE REQUESTED NOT TO WRITE ACROSS THIS MARGIN.