

REPORT ON ELECTRIC LIGHTING INSTALLATION. No. 64814

Port of Newcastle-on-Tyne Date of First Survey 5 Aug 1913 Date of Last Survey 1st Apr 1913 No. of Visits 6
 No. in Reg. Book on 1000 or Steel S.S. "PAWNEE" Port belonging to
 Built at Hebburn By whom Palmer's S/B & Iron Co. Ltd When built 1913
 Owners Dutch American Petroleum Co. Owners' Address
 Yard No. 827 Electric Light Installation fitted by Siemens Bros. Dynamo Works Ltd When fitted Aug. 1913

DESCRIPTION OF DYNAMO, ENGINE, ETC.

1 Siemens-Shankes Set. Twin cylinder open type engine direct coupled to multipolar compound wound dynamo.
 Capacity of Dynamo 150 Amperes at 110 Volts, whether continuous or alternating current Continuous
 Where is Dynamo fixed Engine Room Whether single or double wire system is used Double
 Position of Main Switch Board Engine Room having switches to groups A to F of lights, &c., as below
 Positions of auxiliary switch boards and numbers of switches on each 16 Auxiliary

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 Cartridge Fuses Supplied.

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

Total number of lights provided for 178 arranged in the following groups:—

A	<u>44</u>	lights each of	<u>25</u>	candle power requiring a total current of	<u>33</u>	Amperes
B	<u>41</u>	lights each of	<u>25</u>	candle power requiring a total current of	<u>30.75</u>	Amperes
C	<u>59</u>	lights each of	<u>25</u>	candle power requiring a total current of	<u>29.25</u>	Amperes
D	<u>15</u>	lights each of	<u>25</u>	candle power requiring a total current of	<u>11.25</u>	Amperes
E	<u>23</u>	lights each of	<u>25</u>	candle power requiring a total current of	<u>17.25</u>	Amperes
F	<u>Marconi</u>				<u>about 30</u>	Amperes
	<u>2</u>	Mast head lights with	<u>1</u> lamp each of	<u>32</u>	candle power requiring a total current of	<u>2</u> Amperes
	<u>2</u>	Side lights with	<u>1</u> lamp each of	<u>32</u>	candle power requiring a total current of	<u>2</u> Amperes
	<u>4</u>	Cargo lights of	<u>6-25</u>	candle power, whether incandescent or arc lights	<u>Incandescent</u>	

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

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

DESCRIPTION OF CABLES.

Main cable carrying 151 Amperes, comprised of 37 wires, each .072 S.W.G. diameter, .15 square inches total sectional area
 Branch cables carrying 33 Amperes, comprised of 19 wires, each .16 S.W.G. diameter, .06 square inches total sectional area
 Branch cables carrying 21 Amperes, comprised of 7 wires, each .16 S.W.G. diameter, .022 square inches total sectional area
 Leads to lamps carrying 2 Amperes, comprised of 1 wires, each .18 S.W.G. diameter, .0018 square inches total sectional area
 Cargo light cables carrying 4.5 Amperes, comprised of 136 wires, each .40 S.W.G. diameter, .002463 square inches total sectional area

DESCRIPTION OF INSULATION, PROTECTION, ETC.

Conductors of high conductivity tinned copper wire, insulated with pure & vulcanized india-rubber, taped & lead covered. Also as above (with) taped lead covered and armoured with galvanized steel wires.

Joints in cables, how made, insulated, and protected Jointless System

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 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 All exposed wiring held in place with brass or galvanized iron clips screwed to wood or iron bulkheads or under side of decks. Protection as above.

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 Covered & Armoured

What special protection has been provided for the cables near galleys or oil lamps or other sources of heat Lead Covered & Armoured

What special protection has been provided for the cables near boiler casings Lead Covered & Armoured

What special protection has been provided for the cables in engine room Lead Covered & Armoured

How are cables carried through beams Holes fibre bushed through bulkheads, &c. H. T. Brass Glands

How are cables carried through decks H. T. Deck Glands

Are any cables run through coal bunkers Yes or cargo spaces ✓ or spaces which may be used for carrying cargo, stores, or baggage

If so, how are they protected Lead Covered & Armoured in heavy wood casing

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 Yes

Are any switches, fuses, or joints of cables fitted in the pump room or companion no

How are the lamps specially protected in places liable to the accumulation of vapour or gas H. T. fittings on gas tight pipes

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 2000 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.

H. S. Kennedy Electrical Engineers Date 24th Sept 1913

COMPASSES.

Distance between dynamo or electric motors and standard compass 30 feet.

Distance between dynamo or electric motors and steering compass 25 feet.

The nearest cables to the compasses are as follows:—

A cable carrying	Amperes	feet from standard compass	feet from steering compass
<u>30.75</u>	<u>20</u>	<u>15</u>	<u>15</u>
<u>17.25</u>	<u>17</u>	<u>12</u>	<u>12</u>
<u>11.25</u>	<u>30</u>	<u>25</u>	<u>25</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 no degrees on all course in the case of the standard compass and all degrees on all course in the case of the steering compass.

J. L. Swaddell Builder's Signature. Date 26th Sept 1913

GENERAL REMARKS. The above installation has been fitted in a satisfactory manner and in accordance with the Rules.

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

IM 20/9/13 Thomas Field Surveyor to Lloyd's Register of British and Foreign Shipping.

Committee's Minute

THE SURVEYORS ARE REQUESTED NOT TO WRITE ACROSS THIS MARGIN.