

REPORT ON ELECTRIC LIGHTING INSTALLATION. No. 37167

Port of Glasgow Date of First Survey 15/9/19 Date of Last Survey 22/9/19 No. of Visits 2
 No. in Reg. Book 21414 on the Iron or Steel T.S.S. Nardana Port belonging to Glasgow
 Built at Whiteinch By whom Messrs Barclay Curle & Co Ltd When built 1919
 Owners British Ind. Steam Nav. Co Ltd Owners' Address _____
 Yard No. 565 Electric Light Installation fitted by Messrs A. Watson & Co Ltd When fitted 1919

DESCRIPTION OF DYNAMO, ENGINE, ETC.

6 1/2 x 6 Open Type Vertical Engine (Shanks) driving a 10 KW Elect Construction Co's Dynamo.
Sunderland Forge Open Type Vertical Engine driving a 15 KW Sunderland Forge Dynamo.
 Capacity of Dynamo 1 @ 150 Amperes at 100 Volts, whether continuous or alternating current Continuous
 Where is Dynamo fixed Tunnel Recess Whether single or double wire system is used Double Wire
 Position of Main Switch Board Adjacent to Dynamo having switches to groups _____ of lights, &c., as below
 Positions of auxiliary switch boards and numbers of switches on each _____
 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-oxidisable 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 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 253 arranged in the following groups:—
 A Fore Cargos 27 lights each of 16 candle power requiring a total current of 30.28 Amperes
 B Navigation 4 lights each of 32 candle power requiring a total current of 10.84 Amperes
 C Aft Cargos 27 lights each of 16 candle power requiring a total current of 23.76 Amperes
 D Aft Crew 5 lights each of 16 candle power requiring a total current of 9.40 Amperes
 E Engine Room 60 lights each of 16 candle power requiring a total current of 36.40 Amperes
2 Mast head light with 2 lamps each of 32 candle power requiring a total current of 2.56 Amperes
2 Side light with 2 lamps each of 32 candle power requiring a total current of 2.56 Amperes
15 Cargo lights of 6-6 light 6-3 candle power, whether incandescent or arc lights 12 Incandescent 3 Arc Lamps
 If arc lights, what protection is provided against fire, sparks, &c. Arc Totally enclosed in Inner glass, then fitted with strong outer globe.

Where are the switches controlling the masthead and side lights placed Wheelhouse

DESCRIPTION OF CABLES.

Main cable carrying 150 Amperes, comprised of 37 wires, each 13 S.W.G. diameter, .25 square inches total sectional area
 Branch cables carrying 38.4 Amperes, comprised of 7 wires, each 16 S.W.G. diameter, .022 square inches total sectional area
 Branch cables carrying 25 Amperes, comprised of 7 wires, each 18 S.W.G. diameter, .0125 square inches total sectional area
 Leads to lamps carrying 64 Amperes, comprised of 1 wires, each 17 S.W.G. diameter, .0025 square inches total sectional area
 Cargo light cables carrying 20 Amperes, comprised of 7 wires, each 18 S.W.G. diameter, .0125 square inches total sectional area

DESCRIPTION OF INSULATION, PROTECTION, ETC.

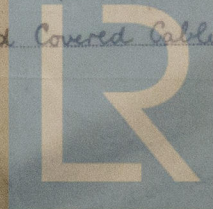
Insulated Rubber Cable, protected with Galvanised Iron Wire
& stout hemp braiding

Joints in cables, how made, insulated, and protected No joints

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 _____

How are the cables led through the ship, and how protected Through beams in ferules, clipped to decks or Bulkheads, Twin Decks & Machinery Spaces; Twin Armoured & Braided Cable and in the accommodation Lead Covered Cable



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 Armoured & Braided Cable

What special protection has been provided for the cables near galley or oil lamps or other sources of heat Armoured & Braided Cable

What special protection has been provided for the cables near boiler casings Armoured & Braided Cable

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

How are cables carried through beams In Fibre Vermules through bulkheads, &c. W.T. Packing Boxes

How are cables carried through In W.T. Deck Tubes, standing 16" above the 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 In Woot Iron galvanised pipes

Are any lamps fitted in coal bunkers 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 500 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.

for A. Watson & Co. Ltd.
15.12.19

Electrical Engineers

Date 1/10/19

COMPASSES.

Distance between dynamo or electric motors and standard compass 150 feet

Distance between dynamo or electric motors and steering compass 145 feet

The nearest cables to the compasses are as follows:—

A cable carrying	Amperes	feet from standard compass	feet from steering compass
<u>10.5</u>	<u>6</u>	<u>4</u>	<u>4</u>
<u>6</u>	<u>2</u>	<u>2</u>	<u>2</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 any course in the case of the standard compass and Nil degrees on any course in the case of the steering compass.

Builder's Signature.

Date 2nd Oct 1919

GENERAL REMARKS.

This Installation has been fitted on board under special survey. Tested under full working conditions & found satisfactory

It is submitted that this vessel is eligible for

THE RECORD.

Elec Light

J. Stanley Rankin.

Surveyor to Lloyd's Register of Shipping.

Committee's Minute

Elec. Light



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THE SURVEYORS ARE REQUESTED NOT TO WRITE ACROSS THIS MARGIN.

If fuses are fitted on main switch board to the cables of main circuit

and on each auxiliary switch board to the circuit

ARCHD. WATSON & CO., LTD.

ELECTRICAL REPORT (contd.)

T.S.S. "NARDANA"

Circuit F.

ENGINEERS' ACCOM.

32 lights at 5 c.p. requiring a total current)	
of	
5 lights at 16 C.P.	" " ") 13.65 amps.
9 Fans at 45 Watts	" " ")

Circuit G.

SALOON ACCOMM.

40 Lights at 5 c.p. requiring a total current)	
of	
8 lights at 16 c.p.	" " ") 18.07
11 Fans at 45 Watts.	" " ")



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