

REPORT ON ELECTRIC LIGHTING INSTALLATION. No. 16986

Port of Greenock Date of First Survey 26/11/15a Date of Last Survey 1/4/16 No. of Visits 38
 No. in on the ~~Iron~~ Steel Steamer "Tennachor" Port belonging to
 Reg. Book Built at Greenock By whom Messrs Greenock & Frangemouth Dockyard Co Ltd When built 1916
 Owners Tennachor S. I. Co Ltd Owners' Address Glasgow
 Yard No. 363 Electric Light Installation fitted by Sunderland Forge & Engineering Co Ltd When fitted 1916

DESCRIPTION OF DYNAMO, ENGINE, ETC.

One multipolar compound wound Dynamo coupled direct to open type engine both Sunderland Forge & Engineering Co Ltd
 Capacity of Dynamo 150 Amperes at 100 Volts, whether continuous or alternating current Continuous
 Where is Dynamo fixed Starboard side engine room Whether single or double wire system is used Double
 Position of Main Switch Board close to plant having switches to groups 6 of lights, &c., as below
 Positions of auxiliary switch boards and numbers of switches on each in chart room controlling 2 side lights 2 mast head lights, 3 compass, 2 telegraphs, Morse Light and lights in chart room wheelhouse etc.
 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 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
 Are all switches and fuses constructed of incombustible materials and fitted on incombustible bases yes

Total number of lights provided for 153 arranged in the following groups:—

Group	Description	Quantity	Wattage / C.P.	Total Current	Amperes
A	Aft	25 lights each of	23 - 16 c.p. 2 - 32 c.p.	candle power requiring a total current of	14
B	Engine Room	28 lights each of	16	candle power requiring a total current of	15.68
C	Middleships	28 lights each of	58 @ 16 c.p. 4 @ 32 c.p. 2 @ 8 c.p. lamp	candle power requiring a total current of	39.43
D	Forward	21 lights each of	18 @ 16 c.p. 2 @ 32 c.p.	candle power requiring a total current of	11.76
E	Pump Room	8 lights each of	16	candle power requiring a total current of	4.48
	2 wireless				
	2 Mast head light with	1 lamps each of	32	candle power requiring a total current of	1.12
	2 Side light with	1 lamps each of	32	candle power requiring a total current of	1.12
	4 Cargo lights of	8 - 16		candle power, whether incandescent or arc lights	incandescent

If arc lights, what protection is provided against fire, sparks, &c.

Where are the switches controlling the masthead and side lights placed in chart room

DESCRIPTION OF CABLES.

Cable Type	Current	Wires	W.G. Diameter	Total Sectional Area
Main cable carrying	150 Amperes	37 wires, each	15 S.W.G. diameter	.150 square inches
Branch cables carrying	39.43 Amperes	19 wires, each	17 S.W.G. diameter	.046 square inches
Branch cables carrying	11.76 Amperes	7 wires, each	18 S.W.G. diameter	.0125 square inches
Leads to lamps carrying	2.24 Amperes	1 wires, each	18 S.W.G. diameter	.0018 square inches
Cargo light cables carrying	4.48 Amperes	1 wires, each	16 S.W.G. diameter	.0032 square inches

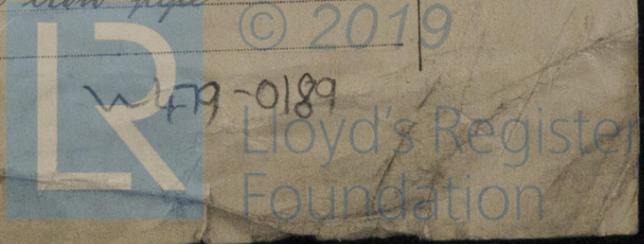
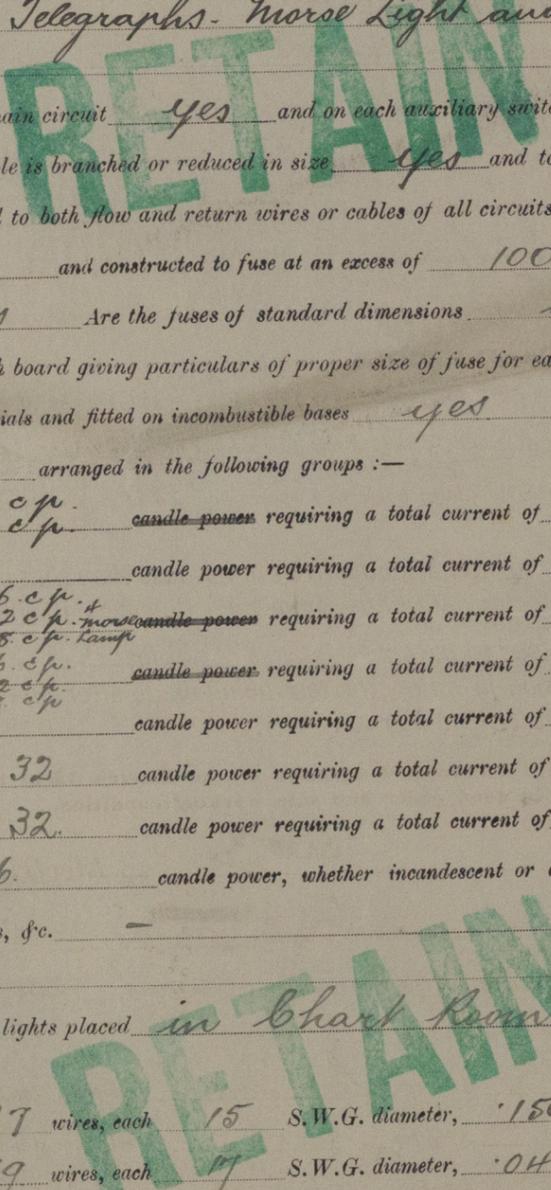
DESCRIPTION OF INSULATION, PROTECTION, ETC.

Mains Pure para rubber, V.I.R. taped & vulcanised. Braided & compounded
 Mains in engine room. ditto but lead covered, armoured with Galv. Iron wires & braided
 In accommodation. ditto, but lead covered only.
 Joints in cables, how made, insulated, and protected There are none.

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 V.I.R. cable run in iron pipe.



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 run in iron pipe

What special protection has been provided for the cables near galleys or oil lamps or other sources of heat V.I.R. cable in iron pipe

What special protection has been provided for the cables near boiler casings Armoured & braided - Branches V.I.R. in pipe

What special protection has been provided for the cables in engine room armoured & braided + V.I.R. in pipe

How are cables carried through beams hole bushed with fibre through bulkheads, &c. watertight glands

How are cables carried through decks watertight deck tubes

Are any cables run through coal bunkers no or cargo spaces no or spaces which may be used for carrying cargo, stores, or baggage yes

If so, how are they protected armoured and braided

Are any lamps fitted in coal bunkers or spaces which may at times be used for cargo, coals, or baggage yes

If so, how are the lamp fittings and cable terminals specially protected special guarded fittings

Where are the main switches and fuses for these lights fitted at distribution box

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 vapour light guarded fittings

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 1000 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.

P. PRO THE SUNDERLAND FORGE & ENGINEERING CO., LTD.

Geo. G.

Electrical Engineers

Date 6th May 1916

COMPASSES.

Distance between dynamo or electric motors and standard compass Directly about 205 feet

Distance between dynamo or electric motors and steering compass about 200 "

The nearest cables to the compasses are as follows:—

A cable carrying	<u>56.</u>	Amperes	<u>led into</u>	feet from standard compass	<u>about 5</u>	feet from steering compass
A cable carrying	<u>56.</u>	Amperes	<u>about 5</u>	feet from standard compass	<u>led into</u>	feet from steering compass
A cable carrying	<u>1.12.</u>	Amperes	<u>about 5.</u>	feet from standard compass	<u>about 5</u>	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 nil degrees on all courses in the case of the standard compass and nil degrees on all courses in the case of the steering compass.

THE GREENOCK AND GRAMSMOUTH DOCKWORKS CO., LD.

Builder's Signature.

Date 11th May 1916

GENERAL REMARKS.

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The fitting of the wires throughout this vessel are as stated in this Report and appear to be in accordance with the Committee's requirements.

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

J.W.D. 18/5/16.

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

Committee's Minute

GLASGOW

16 MAY 1916

Elec. Light



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THE SURVEYORS ARE REQUESTED NOT TO WRITE ACROSS THIS MARGIN.

LAM 15/5/16