

## REPORT ON ELECTRIC LIGHTING INSTALLATION. No. 27577

Port of SUNDERLAND Date of First Survey 8 July Date of Last Survey 11 July No. of Visits 3  
 No. in Reg. Book on the Iron or Steel "KAIWARRA" Port belonging to Glasgow  
 Built at SUNDERLAND By whom MESSRS J. BLUMER & CO. When built 1919  
 Owners Union S.S. Co. of New Zealand Owners' Address  
 Yard No. 251 Electric Light Installation fitted by THE SUNDERLAND FORGE & ENG CO. LTD When fitted 1919

## DESCRIPTION OF DYNAMO, ENGINE, ETC.

One Combined Plant consisting of single cylinder vertical open type Engine. 7x5-360mm 100lbs steam coupled to compound wound multipolar Dynamo. Both by S.F.E.C.

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

Where is Dynamo fixed Eng. Rm. Bolt Plaft. Starboard Whether single or double wire system is used double

Position of Main Switch Board close to Dynamo having switches to groups five of lights, &c., as below

Positions of auxiliary switch boards and numbers of switches on each with 8 switches controlling: Navigation lights. Compasses. Telegraph. & Morse light.

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 No 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 136 @ 16 c.p. arranged in the following groups:—

A ACCOMM <sup>ENT</sup>	= 63	lights each of	16	candle power requiring a total current of	35.3	Amperes
B NAVIGATION	= 17	lights each of	"	candle power requiring a total current of	9.5	Amperes
C ENG. & BOILER Rms	= 26	lights each of	"	candle power requiring a total current of	14.6	Amperes
D CARGO	= 30	lights each of	"	candle power requiring a total current of	16.8	Amperes
E WIRELESS	-	lights each of	-	candle power requiring a total current of	25	Amperes
2 Mast head light with	1	lamps each of	32	candle power requiring a total current of	2.24	Amperes
2 Side light with	1	lamps each of	32	candle power requiring a total current of	2.24	Amperes
5-5 Cargo lights of	6 light	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.

Main cable carrying	100	Amperes, comprised of	19	wires, each	14	S.W.G. diameter,	.094	square inches total sectional area
Branch cables carrying	35.3	Amperes, comprised of	7	wires, each	16	S.W.G. diameter,	.022	square inches total sectional area
Branch cables carrying	9.5	Amperes, comprised of	7	wires, each	20	S.W.G. diameter,	.007	square inches total sectional area
Leads to lamps carrying	2.5	Amperes, comprised of	7	wires, each	25	S.W.G. diameter,	.0022	square inches total sectional area
Cargo light cables carrying	3.5	Amperes, comprised of	70	wires, each	36	S.W.G. diameter,	.0032	square inches total sectional area

## DESCRIPTION OF INSULATION, PROTECTION, ETC.

MAINS & MACHINERY SPACES etc. Pure & Vulc. I.R. taped & vulcanized - then Armoured & Braided  
 CABIN ACCOMM<sup>ENT</sup> " do. Lead Covered

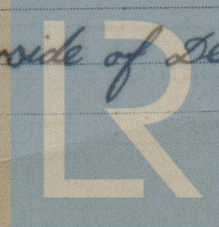
Joints in cables, how made, insulated, and protected None

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 A & B. Cable run on underside of Deck.

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**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 V.I.R. cable run in Iron Pipe - or Armoured & Braided cable used.

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

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 Holes bushed with fibre through bulkheads, &c. W.T. Glands

How are cables carried through decks W.T. Deck Tubes

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 Armoured & Braided

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 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.

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

Electrical Engineers

Date 19-8-19

**COMPASSES.**

Distance between dynamo or electric motors and standard compass about 90 ft

Distance between dynamo or electric motors and steering compass " 85 ft

The nearest cables to the compasses are as follows:—

A cable carrying	Amperes	Distance from standard compass	Distance from steering compass
9.5	14	8 feet	8 feet
56	7	led into	led into
56	led into	7 feet	7 feet

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

21st Aug 1919

**GENERAL REMARKS.**

The installation has been satisfactorily fitted in the vessel, tested at full load and found good.

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

23/8/19

S. C. Davis

22 AUG 1919

Surveyor to Lloyd's Register of Shipping.

Committee's Minute

THE SURVEYORS ARE REQUESTED NOT TO WRITE ACROSS THIS MARGIN.



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