

## REPORT ON ELECTRIC LIGHTING INSTALLATION. No. 26130

Port of SUNDERLAND Date of First Survey 4-6-14 Date of Last Survey 8-6-14 No. of Visits 3  
 No. in on the Iron or Steel S.S. "Belridge" Port belonging to Tonsberg  
 Reg. Book 4-97 Built at Sunderland By whom Sir James Laing & Sons Ltd When built 1914  
 Owners Mrs. Tankard (W. Wilhelmsen, Mgr.) Owners' Address  
 Yard No. 697 64 Y Electric Light Installation fitted by Sunderland Forge & Eng. Co. Ltd When fitted 1914

## DESCRIPTION OF DYNAMO, ENGINE, ETC.

One multipolar compound wound dynamo coupled direct to vertical open type engine.

Capacity of Dynamo 90 Amperes at 110 Volts, whether continuous or alternating current continuous ✓  
 Where is Dynamo fixed middle platford in E. Room. Whether single or double wire system is used double ✓  
 Position of Main Switch Board close to plant having switches to groups four of lights, &c., as below  
 Positions of auxiliary switch boards and numbers of switches on each One in wheel house controlling 2 mast 2-side  
2 telegraph 3 compasses and 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-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 121 arranged in the following groups:—

A	65	lights each of	16	candle power requiring a total current of	33.15	Amperes
B	44	lights each of	16	candle power requiring a total current of	22.44	Amperes
C	12	lights each of	16	candle power requiring a total current of	6.12	Amperes
D	Wireless	lights each of	$\frac{1}{2}$ K.W.	candle power requiring a total current of	15.00	Amperes
E		lights each of		candle power requiring a total current of		Amperes
	2	Mast head light with 1	lamps each of 32 D.F.	candle power requiring a total current of	2.04	Amperes
	2	Side light with 1	lamps each of 32 D.F.	candle power requiring a total current of	2.04	Amperes
	1	Cargo lights of	6 x 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 Wheelhouse.

## DESCRIPTION OF CABLES.

Main cable carrying	76.71	Amperes, comprised of	19	wires, each	14	S.W.G. diameter,	.094	square inches total sectional area
Branch cables carrying	33.15	Amperes, comprised of	7	wires, each	15	S.W.G. diameter,	.028	square inches total sectional area
Branch cables carrying	22.44	Amperes, comprised of	7	wires, each	18	S.W.G. diameter,	.0125	square inches total sectional area
Leads to lamps carrying	2.04	Amperes, comprised of	1	wires, each	18	S.W.G. diameter,	.0018	square inches total sectional area
Cargo light cables carrying	3.06	Amperes, comprised of	1	wires, each	18	S.W.G. diameter,	.0018	square inches total sectional area

## DESCRIPTION OF INSULATION, PROTECTION, ETC.

In berths etc. L.C.

E. Room. L.C.A.

Mains and mast V.I.R. in iron pipe.

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

How are the cables led through the ship, and how protected V.I.R. in iron pipe.



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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 L.C. & A.

What special protection has been provided for the cables near galleys or oil lamps or other sources of heat L.C. & A.

What special protection has been provided for the cables near boiler casings L.C. & A.

What special protection has been provided for the cables in engine room L.C. & A.

How are cables carried through beams holes bushed fibre. through bulkheads, &c. W.T. Glands.

How are cables carried through decks W.T. iron deck tubes.

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

If so, how are they protected in iron pipes

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 Air tight 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 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.

**PRO THE SUNDERLAND FORGE & ENGINEERING CO. LTD.**

Electrical Engineers

Date: 10/6/1914.

**COMPASSES.**

Distance between dynamo or electric motors and standard compass Director about 245 feet.

Distance between dynamo or electric motors and steering compass about 240 feet.

The nearest cables to the compasses are as follows:—

A cable carrying	.51	Amperes	about 4	feet from standard compass	led into	feet from steering compass
A cable carrying	.51	Amperes		led into	about 5	feet from steering compass
A cable carrying	2.04	Amperes	about 4	feet from standard compass	about 5	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 none degrees on any course in the case of the standard compass and none degrees on any course in the case of the steering compass.

**SIR JAMES LING & SONS, LIMITED.**

*W. Richards*

Builder's Signature.

Date 15-6-14

**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.

*J.W.D. 17/6/14*

*Lewis Davis*

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

Committee's Minute

THE SURVEYORS ARE REQUESTED NOT TO WRITE ACROSS THIS MARGIN.



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