

REPORT ON ELECTRIC LIGHTING INSTALLATION. No. 27376

Port of Sunderland Date of First Survey 4 Apr 18 Date of Last Survey 22 Nov 18 No. of Visits 3
 No. in Reg. Book 27358 on the Iron or Steel S/S HAR-ASPEN Sutherland Port belonging to Newcastle
 Built at Sunderland By whom W. B. Bedford & Sons Ltd When built 1918
 Owners A. M. Sutherland Owners' Address Newcastle
 Yard No. 528 Electric Light Installation fitted by Messrs Charles Chapman & Co. Ltd When fitted 1918

DESCRIPTION OF DYNAMO, ENGINE, ETC.

One single cylinder double-acting open type vertical engine direct coupled to a continuous current compound wound dynamo.

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

Where is Dynamo fixed in Engine Room Whether single or double wire system is used Double

Position of Main Switch Board Near Dynamo having switches to groups A B C D E of lights, &c., as below

Positions of auxiliary switch boards and numbers of switches on each Each light & group of lights provided with switches as required

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 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 Yes

Are all switches and fuses constructed of incombustible materials and fitted on incombustible bases Yes slate & porcelain

Total number of lights provided for 141 arranged in the following groups:

Accommodation	69	lights each of	16	candle power requiring a total current of	38.6	Amperes
Engine Room	33	lights each of	16	candle power requiring a total current of	18.5	Amperes
Navigation	9	lights each of	16	candle power requiring a total current of	5	Amperes
Deck-Clusters	30	lights each of	16	candle power requiring a total current of	16.8	Amperes
E Wireless	-	lights each of	-	candle power requiring a total current of	25	Amperes
1	Mast head light with	1	lamps each of	2 1/2	candle power requiring a total current of	.03
2	Side light with	1	lamps each of	5.8	candle power requiring a total current of	.56
5	Cargo lights of		6.16	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 tick box in bridge rail

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 38.6 Amperes, comprised of 7 wires, each 16 S.W.G. diameter, .022 square inches total sectional area
 Branch cables carrying 18.5 Amperes, comprised of 7 wires, each 20 S.W.G. diameter, .0070 square inches total sectional area
 Leads to lamps carrying 1.1 Amperes, comprised of 1 wires, each 18 S.W.G. diameter, .0018 square inches total sectional area
 Cargo light cables carrying 3.3 Amperes, comprised of 168 wires, each 38 S.W.G. diameter, .0050 square inches total sectional area

DESCRIPTION OF INSULATION, PROTECTION, ETC.

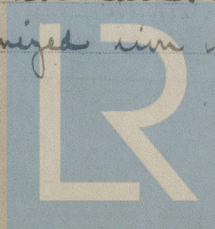
Vulcanized india rubber lapped & braided - lead covered where exposed steel armored cable

Joints in cables, how made, insulated, and protected In joints except mechanical ones

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 Lead covered & steel armored cables run through holds & shipped to underside of deck with string galvanized iron clips



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DESCRIPTION OF INSULATION, PROTECTION, ETC.—continued.

Are they in places always accessible *No*

What special protection has been provided for the cables in open alleyways or where exposed to weather or moisture *Lead covered & steel armored cables*

What special protection has been provided for the cables near galleys or oil lamps or other sources of heat *Lead armored cables*

What special protection has been provided for the cables near boiler casings

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

How are cables carried through beams *in lead bushes* through bulkheads, &c. in WT glands ✓

How are cables carried through decks *in galvanized iron deck tiles* ✓

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 *Lead covered & steel armored cables*

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 *to WT connection boxes*

In vessels fitted on the single wire system, how is the dynamo terminal fixed to the hull of vessel *Single wire system*

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 in *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 Clarke, Chapman & Co., Ltd.

Electrical Engineers

Date *June 5th 1919*

COMPASSES.

Distance between dynamo or electric motors and standard compass *106 ft*

Distance between dynamo or electric motors and steering compass *100*

The nearest cables to the compasses are as follows:—

A cable carrying	Amperes	feet from standard compass	feet from steering compass
<i>1.1</i>	<i>12</i>	<i>6</i>	
<i>1.1</i>	<i>6</i>	<i>12</i>	
<i>.</i>	<i>.</i>	<i>.</i>	

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* course in the case of the standard compass and *Nil* degrees on *all* course in the case of the steering compass.

WILLIAM DOXFORD & SONS, Limited.

Builder's Signature.

Date *June 12th 1919*

GENERAL REMARKS.

This installation appears to have 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.

HELD 17/6/19

W. H. H. H.
Surveyor to Lloyd's Register of Shipping.

Committee's Minute

THE SURVEYORS ARE REQUESTED NOT TO WRITE ACROSS THIS MARGIN.



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