

JAN. 26 1921

No. 40671.

## REPORT ON ELECTRIC LIGHTING INSTALLATION.

Port of Glasgow. Date of First Survey 14 Oct. 1920 Date of Last Survey 30 Nov. 1920 No. of Visits 4  
 No. in on the Iron or Steel S.S. Clan Macnab Port belonging to Glasgow  
 Reg. Book 480938 Built at Arvick By whom Missrs The Glasgow Shipyard & Dock Co. Ltd. When built 1920  
 Owners Missrs The Clan Line Ltd. Owners' Address 100, The Strand, London W.C.2  
 Yard No. 480 Electric Light Installation fitted by Missrs The Sunderland Forge & Eng. Co. Ltd. When fitted 1920

## DESCRIPTION OF DYNAMO, ENGINE, ETC.

One combined plant consisting of single cylinder vertical open type inverted engine 9x7  
 200 H.P. 100 lb steam coupled to compound multipolar dynamo both by S.P.B. Co.

Capacity of Dynamo 200 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 Close to Dynamo having switches to groups Eight of lights, &c., as below

Positions of auxiliary switch boards and numbers of switches on each in Chart Room with switches controlling Foremast, Mainmast, Port, Starboard, Stern, 2 Anchor Lights, 2 Morse Lamps, compasses & Telegraphs.

If fuses are fitted on main switch board to the cables of main circuit Yes and on each auxiliary Fuse 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

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 204 arranged in the following groups:—

A	Projector	28	lights each of	16	candle power requiring a total current of	15.68	Amperes
B	Navigation	28	lights each of	"	candle power requiring a total current of	33.26	Amperes
C	Saloon Accom.	25	lights each of	"	candle power requiring a total current of	29.80	Amperes
D	Eng. Room	39	lights each of	"	candle power requiring a total current of	17.36	Amperes
E	Cargo	30	lights each of	"	candle power requiring a total current of	21.84	Amperes
	2 Mast head light with	2	lamps each of	"	candle power requiring a total current of	2.24	Amperes
	2 Side light with	2	lamps each of	"	candle power requiring a total current of	2.24	Amperes
	5 Cargo lights of	6	"	"	candle power, whether incandescent or arc lights	Incandescent	

If arc lights, what protection is provided against fire, sparks, &c. Are enclosed in Hexagonal Lanterns  
Searchlight Projector Are enclosed in Suitable Body.

Where are the switches controlling the masthead and side lights placed in Chart Room

## DESCRIPTION OF CABLES.

2 Main cables carrying	200	Amperes, comprised of	37	wires, each	15	S.W.G. diameter,	.300	square inches total sectional area
Branch cables carrying	60	Amperes, comprised of	19	wires, each	.064	S.W.G. diameter,	.06	square inches total sectional area
Branch cables carrying	25	Amperes, comprised of	7	wires, each	.044	S.W.G. diameter,	.01	square inches total sectional area
Leads to lamps carrying	3.5	Amperes, comprised of	3	wires, each	.029	S.W.G. diameter,	.002	square inches total sectional area
Cargo light cables carrying	5.2	Amperes, comprised of	70	wires, each	.26	S.W.G. diameter,	.0032	square inches total sectional area

## DESCRIPTION OF INSULATION, PROTECTION, ETC.

Main & Machinery Spaces - Pure Vulk. S.R. Taped & Vulcanized the Painted & Compound  
 Accommodation Spaces - do - do - do

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 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 4" M. run in Lead 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? *4.5 lb. run in lead pipe*

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

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? *After lashed with fibre* through bulkheads, &c. *W/T glands*

How are cables carried through decks? *W/T. Lead 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? *4.5 lb. run in lead pipe*

Are any lamps fitted in coal bunkers or spaces which may at times be used for cargo, stores, 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.

*Sunderland Forge & Engineering Co. Ltd.* Electrical Engineers Date *16 Decr 1920.*

COMPASSES.

Distance between dynamo or electric motors and standard compass *about 110 feet*

Distance between dynamo or electric motors and steering compass *" 113 "*

The nearest cables to the compasses are as follows:—

A cable carrying	Amperes	feet from standard compass	feet from steering compass
<i>15.68</i>	<i>7</i>	<i>—</i>	<i>—</i>
<i>.56</i>	<i>10 feet</i>	<i>—</i>	<i>—</i>
<i>.56</i>	<i>led into</i>	<i>10 feet</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 *any* course in the case of the standard compass and *Nil* degrees on *any* course in the case of the steering compass.

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

Builder's Signature. Date *16 Decr 1920.*  
*AYRSHIRE DOCKYARD CO., LIMITED.*

GENERAL REMARKS.

*This installation has been fitted on board under special survey. Tested on our full working conditions found satisfactory. It is submitted that this vessel is eligible for THE RECORD. Elec Light Recd 24/1/21*  
*J. P. Rankin.*  
Surveyor to Lloyd's Register of Shipping.

Committee's Minute *GLASGOW. 25 JAN 1921*

*Elec Light*



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