

REPORT ON ELECTRIC LIGHTING INSTALLATION. No. 44444

Port of Glasgow Date of First Survey 30.8.21 Date of Last Survey 4.10.21 No. of Visits 7
 No. in Reg. Book on the Iron or Steel M.V. "MAHIA" Port belonging to Liverpool
 Built at Port Glasgow By whom Messrs Wm. Hamilton & Co. When built 1921
 Owners Messrs T. J. Brocklebank Owners' Address Canard Buildings Liverpool
 Yard No. 377 Electric Light Installation fitted by Messrs H. T. Robertson & Co. When fitted 1921

DESCRIPTION OF DYNAMO, ENGINE, ETC.

Two Allen Dynamos 45 Kw. coupled direct to Vicker Petters 616 Eng
one " " 6 1/2 " " " " " " "

Capacity of Dynamo above Amperes at 220 Volts, whether continuous or alternating current continuous

Where ~~the~~ Dynamos fixed Two starting Platform
one above

Whether single or double wire system is used double wire

Position of Main Switch Board Starting " "

having switches to groups of lights, &c., as below

Positions of auxiliary switch boards and numbers of switches on each

see continuation sheet

If fuses are fitted on main switch board to the cables of main circuit Yes and on each auxiliary switch Yes 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 80 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 162 arranged in the following groups:—

A	lights each of	candle power requiring a total current of	Amperes
B	lights each of	candle power requiring a total current of	Amperes
C	lights each of	candle power requiring a total current of	Amperes
D	lights each of	candle power requiring a total current of	Amperes
E	lights each of	candle power requiring a total current of	Amperes
<u>2</u>	Must head lights with <u>1</u> lamp each of <u>32</u>	candle power requiring a total current of	Amperes
<u>2</u>	Side light with <u>1</u> lamp each of <u>32</u>	candle power requiring a total current of	Amperes

6 Cargo lights of 5 of 16 cp 30 candle power, whether incandescent or arc lights Incandescent
2 1/2 W. " 1000 cp 2000 " " "

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

No Arc Lamps fitted

Where are the switches controlling the masthead and side lights placed In Bridge Board House

DESCRIPTION OF CABLES.

Main cable carrying	Amperes, comprised of	wires, each	S.W.G. diameter,	square inches total sectional area
Branch cables carrying	Amperes, comprised of	wires, each	<u>No 2</u> S.W.G. diameter,	square inches total sectional area
Branch cables carrying	Amperes, comprised of	wires, each	S.W.G. diameter,	square inches total sectional area
Leads to lamps carrying	Amperes, comprised of	wires, each	S.W.G. diameter,	square inches total sectional area
Cargo light cables carrying	Amperes, comprised of	wires, each	S.W.G. diameter,	square inches total sectional area

DESCRIPTION OF INSULATION, PROTECTION, ETC.

Pure Rubber, Vulcanised Rubber Taped & Lead lined in accommodation, elsewhere lead covered & armoured & ext. braided

Joints in cables, how made, insulated, and protected

No Joints

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 Forward under Bridge Deck & Tween Decks
Aft thro' Shaft Tunnel to poop, lead covered, Arm'd & Ext Braided

Glasgow.

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 Lead lined.
What special protection has been provided for the cables near galleys or oil lamps or other sources of heat Lead lined & Arm'd. & Braided
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 Compo Bushes through bulkheads, &c. W/T. Glands.
How are cables carried through decks In Galv'd Iron Deck Pipes
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 Lead, Lead & Armoured, & Lead 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 Adapted screws home.
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 3, and with an amperemeter Yes 3, 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 —
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.

H. J. Robertson & Co Electrical Engineers Date 25th Oct 21

COMPASSES.

Distance between dynamo or electric motors and standard compass 110 ft
Distance between dynamo or electric motors and steering compass 110 ft
The nearest cables to the compasses are as follows:—
A cable carrying H Amperes 6 feet from standard compass & 6 feet from steering compass
A cable carrying — Amperes — feet from standard compass — feet from steering compass
A cable carrying .2 Amperes into feet from standard compass & .2 into 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 every course in the case of the standard compass and Nil degrees on every course in the case of the steering compass.

WILLIAM HAMILTON & CO. LIMITED.

Andrew Munro

Builder's Signature. Date 1st Nov 1921

GENERAL REMARKS.

This installation has been fitted on board under special survey
tested under full working conditions found satisfactory
It is submitted that
this vessel is eligible for
THE RECORD. Elec. Light.

FRS L20-6-0. 4th 10.21.

Pair 17.10.21. Mm.

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

Committee's Minute

GLASGOW,

28 NOV 1921

Elec. Light

M.V. Mahia.

Voltage Of Generators And Motors - 220.

	Nº	H.P.	AMPS	R.P.M.	AREA OF CABLE	SIZE OF CABLE
Generators Nº1+2	2	45KW	205	300	.24	3/16 ✓
Generator Nº3	1	6½	30	125	.04	1/16 ✓
Sanitary Pump	1	7HP	27.5	1200	.0225	7/16 ✓
Sea Circ. Pump	1	4	28.5	1200	.0225	7/16 ✓
Oil Fuel Pump	1	2½	11.5	800	.007	7/16 ✓
Fresh Water Pump	1	4	17	1500	.01	7/16 ✓
Workshop Motor	1	3	10	1600	.007	7/16 ✓
Fresh Water Circ. Pump	2	10	40	900	.04	1/16 ✓
Bilge Pumps.	2	7	27	600	.0225	7/16 ✓
Engine Turning Gear.	1	4	12	1320	.01	7/16 ✓
Steering Gear Motor.	1	12	40	760	.04	1/16 ✓
Lubricating Oil Pumps.	2	2½	11	900	.007	7/16 ✓

Details Of Switchboard Circuits.

Nº	FEEDING	LOAD AMPS	SIZE OF CABLE	AREA OF CABLE	Circuit Nº	FEEDING	LOAD AMPS	SIZE OF CABLE	AREA OF CABLE
1	HEATER CIRCUIT Nº1	38.5	1/16	.04	10	STEERING GEAR MOTOR	40	1/16	.04
2	AUXILIARY SWITCH B	30	1/16	.04	11	BILGE PUMP T.T.	27	7/16	.0225
3	PROJ. PUMPS	17	7/16	.01	12	" " ST.	27	7/16	.0225
4	WORKSHOP MOTOR	10	7/16	.007	13	Lubricating Oil Pump	11	7/16	.007
5	FRESH WATER PUMP Nº1	40	1/16	.04	14	" " " Nº2	11	7/16	.007
6	" " " " Nº2	40	1/16	.04	15	PROJECTOR.	60	1/16	.04
7	SEA CIRC. PUMP Nº1	27.5	7/16	.0225	16	SPARE	—	—	—
8	" " " Nº2	28.5	7/16	.0225	17	SPARE	—	—	—
9	HEATER CIRCUIT Nº2	34	1/16	.04	18	HEATER CIRC Nº3	42	1/16	.04

THE SWITCHBOARD IS NOT ARRANGED FOR PARALLEL RUNNING OF THE GENERATORS BUT FOR DIVIDED LOAD.

Auxiliary Switchboard

Situated On Upper Platform Of Engine Room Port

Circuit Nº	FEEDING	LOAD AMPS	SIZE OF CABLE	AREA OF CABLE	Circuit Nº	FEEDING	LOAD AMPS	SIZE OF CABLE	AREA OF CABLE
1	ENG. ROOMS + Prof LIGHT	8	7/16	.01	4	CARGO L.T. + H. W. LAMPS	13	7/16	.0225
2	SALOON + BRIDGE	9	7/16	.01	5	ENGINE TURNING GEAR	12	7/16	.01
3	WIRELESS	8	7/16	.0225	6	OIL FUEL PUMP	11.5	7/16	.007

The oil fuel pump has a control switch at the entrance to the Engine Room on the "upper deck"