

REPORT ON ELECTRIC LIGHTING INSTALLATION. No. 40302

Port of Glasgow Date of First Survey 14th May Date of Last Survey 3rd July 1920 No. of Visits 8
 No. in Reg. Book 122 on the Iron or Steel T.S. M.S. "Glenogle" Port belonging to London
 Built at Govan By whom Messrs Harland & Wolff Ltd. When built 1920
 Owners Messrs Glen Line Ltd. Owners' Address 1 East India Avenue London E.C.6
 Yard No. 5026 Electric Light Installation fitted by Messrs Harland & Wolff Ltd When fitted 1920

DESCRIPTION OF DYNAMO, ENGINE, ETC.

Four W.H. Allen Sons & Co Dynamos 100KW. 300 R.P.M. each direct coupled to Messrs Harland & Wolff Ltd Diesel Engines.

Capacity of Dynamo 456 Amperes at 220 Volts, whether continuous or alternating current Continuous

Where is Dynamo fixed Port Side of Motor Rm. Whether single or double wire system is used Double

Position of Main Switch Board Aft End of Motor Rm. having switches to groups ABCDE&F. of lights, &c., as below

Positions of auxiliary switch boards and numbers of switches on each None

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 Cartridge Type 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 591 LTS, 1 MORSE LAMP, 35 FANS arranged in the following groups:—

A Navigation Signals 62 lights each of 5-32 C.P. 9-8 C.P. 6-3 C.P. candle power requiring a total current of 10.9 Amperes

B Midship 97 lights each of 27-30 WATT EACH 17 FANS candle power requiring a total current of 17.8 Amperes

C Engineers Crew 144 lights each of 144-30 WATT EACH 18 FANS candle power requiring a total current of 23.6 Amperes

D Motor Rm 129 lights each of 26-30 W. 2-200 W. 1-300 W. candle power requiring a total current of 24.9 Amperes

E Cargo H.P. Lamps 159 lights each of 144-16 C.P. 15-1000 WATT candle power requiring a total current of 111.4 Amperes

F Secondary Light 6 " 20 WATT 25 VOLTS candle power requiring a total current of 5.0 Amperes

2 Mast head light with 1 lamp each of 32 C.P. candle power requiring a total current of 5.0 Amperes

2 Side light with 1 lamp each of 32 C.P. candle power requiring a total current of 6 Amperes

18-8 LIGHT 16 C.P. Cargo lights of 15-1000 WATT LANTERNS. candle power, whether incandescent or arc lights Incandescent.

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 Fuses & Dist Box fitted in Wheelhouse.

DESCRIPTION OF CABLES.

Main cable carrying 456 Amperes, comprised of 91 wires, each .103" S.W.G. diameter, .75 square inches total sectional area

Branch cables carrying 50 Amperes, comprised of 19 wires, each .052" S.W.G. diameter, .04 square inches total sectional area

Branch cables carrying 10.9 Amperes, comprised of 7 wires, each .036" S.W.G. diameter, .007 square inches total sectional area

Leads to lamps carrying 1.5 Amperes, comprised of 3 wires, each .036" S.W.G. diameter, .003 square inches total sectional area

Cargo light cables carrying 2.4 Amperes, comprised of 90 wires, each .0076" S.W.G. diameter, .004 square inches total sectional area

DESCRIPTION OF INSULATION, PROTECTION, ETC.

Cable throughout of 2500 Megohm quality classed to C.M.A insulated with pure and vulcanised rubber protected with lead covering in accommodation. Cables in Motor Rm and where run along exposed deck further protected by steel armouring and braided overall.

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 Lead covered in accommodation exposed. Lead covered armoured & braided and protected by iron plates where run along exposed deck. Lead covered armoured & braided throughout Motor Rm, exposed.

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 covered armour & braided in alleyways & covered with sheet iron on open deck.*

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

What special protection has been provided for the cables near boiler casings *No Boiler Rooms*

What special protection has been provided for the cables in engine room *Lead covered armoured & braided where exposed*

How are cables carried through beams *Beams bushed with lead* through bulkheads, &c. glands if Bulkhead *W*

How are cables carried through decks *In bushed G.I. 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 *No*

If so, how are they protected *Lead covered Armoured & braided & protected with sheet iron*

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 *—*

Cargo light cables, whether portable or permanently fixed *Permanent to socket* How fixed *Permanent wiring clips*

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

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 *2500* megohms per statute mile at 60° Farhenh 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.

James Johnston

Electrical Engineers

Date *8 Sept. 1920*

COMPASSES.

Distance between dynamo or electric motors and standard compass *48 ft*

Distance between dynamo or electric motors and steering compass *44 ft*

The nearest cables to the compasses are as follows:—

A cable carrying	Amperes	feet from standard compass	feet from steering compass
<i>10.9</i>	<i>8</i>	<i>11</i>	
<i>.6</i>	<i>4</i>	<i>6</i>	
<i>.3</i>	<i>6</i>	<i>8</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 the* course in the case of standard compass and *Nil* degrees on *all the* course in the case of the steering compass.

James Johnston

Builder's Signature.

Date *8 Sept. 1920*

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 Lt

J. S. Rankin

Surveyor to Lloyd's Register of Shipping.

Committee's Minute

GLASGOW 21 SEP 1920

Elec. Light.

W. H. L.

NO OFF.	
4	220 Volts
2	Air
1	Bale
2	Bilge
2	Pisto
2	Boyle
1	Fuel
3	Lubric
2	Turn
1	Fresh
1	C. O.
1	Bren
1	Oil
1	Lath
1	Dril
2	25" V
4	Star
1	Win
1	Steer
2	2 Ton
8	7 Ton
6	3 Ton

Situat

CIR	
I	Port Turn
II	Starb. 4
III	Lath. Dril
IV	Aft Bilge
V	Bo
VI	Fuel
VII	Starb. Bilge
VIII	
IX	Port Boyle
X	Motor
XI	
XII	Starb. 4
XIII	Starb. Air
XIV	Aft A
XV	Na



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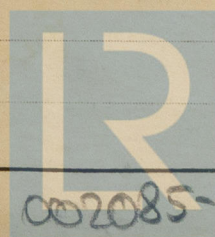
Detail of Dynamos & Motors.

NO OFF.	ITEM.	SIZE	AMPS	SIZE OF CABLE.	AREA OF CABLE. SQ. INS.	Remarks
4	220 Volt Dynamos. each.	K.W 100	456	9/103 2 PAIRS	.75	✓
2	Air Compressor.	180HP	665	6/103	1.00	2 pair of cables in Parallel.
1	Ballast Pumps.	22	84	19/072	.075	✓
2	Bilge Pumps.	10	40	19/064	.06	✓
2	Piston Cooling Pumps	6	24	19/064	.06	✓
2	Cylinder Cooling Pumps.	30	115	37/064	.12	✓
1	Fuel Oil Pump.	8	32	7/064	.0225	✓
3	Lubricating Oil Pumps.	8	32	19/064	.06	✓
2	Turning Gear Motors.	12	48	19/083	.1	✓
1	Fresh Water Pump.	3 1/2	14	19/064	.06	✓
1	C.O2 Compressor.	10 1/2	47	7/064	.0225	✓
1	Brine Pump.	3 1/2	14 1/2	7/036	.007	✓
1	Oil Purifier.	2	8.2	TWIN 3/036	.003	✓
1	Lathe	1 1/2	6.5	7/036	.007	✓
1	Drilling Machine	2	8.85	7/036	.007	✓
2	25" Vent Fans	4 3/4	19	7/036	.007	✓
4	Stanlock Heaters	1/2	2.2	TWIN 3/036	.003	✓
1	Windlass Motor.	95	370	2 PAIRS 37/083	.4	2 pairs of cables in parallel
1	Steering Gear Motor.	33	155	37/083	.2	✓
2	2 Ton Winches	30	120	19/083	.1	Not fitted when Ship left Govan.
8	7 Ton Winches	35	135	37/072	.15	✓
6	3 Ton McFarlane Winches.	50	190	37/083	.2	✓

Detail of Main Switchboard.

Situating at Aft End of Motor Rm on Platform & supplying the following:-

CIR.	GROUP	SIZE OF MAINS.	LOAD	CIR.	GROUP	SIZE OF MAINS.	LOAD
I	Port Turn st Gear & 2 Lub. Oil Pumps	19/083	112	XVI	Steering Gear	37/083	155
II	Starb ^d Turn st Gear & 1 Lub Oil Pump	19/064 7/036	80 8.2	XVII	Lighting Midships.	19/052	17.8
III	Lathe, Drilling M/c & Oil Purifier	7/064	15.35	XVIII	Wireless Telegraphy	7/044	20
IV	Aft Bilge & Starb ^d Piston Cool ^g Pumps	19/052	64	XIX	Searchlight	19/064	80
V	Ballast Pump.	19/072	84	XX	Cooking Appliances	19/052	60
VI	Fuel Oil Pump.	19/064	32	XXI	Cargo Lighting	19/083	111.4
VII	For ^d Bilge & Port Piston Cool ^g Pumps.	19/064	64	XXII	Lighting For ^d	19/064	23.6
VIII	Spare.	-	-	XXIII	Aft Winches	2 PAIRS 6/093	520
IX	Port Cylinder Cooling Pump.	37/064	115	XXIV	For ^d Winches	2 PAIRS 37/093	430
X	Motor Room Lighting.	19/052	24.9	XXV	C.O2 compressor & Brine Pump.	7/064 7/036	47 14.5
XI	Spare	-	-	XXVI	Spare	-	-
XII	Starb ^d Cylinder Cooling Pump.	37/064	115				
XIII	For ^d Air Compressor	2 PAIRS 6/103	665				
XIV	Aft Air Compressor	2 PAIRS 6/103	665				
XV	Navigation	7/036	10.9				



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