

# REPORT ON ELECTRIC LIGHTING INSTALLATION. No. 40971

Port of GLASGOW Date of First Survey 9.2.1920 Date of Last Survey 3.3.21 No. of Visits 13  
 No. in Reg. Book 53744 on the Iron or Steel T.S.S. "CAMERONIA" Port belonging to Glasgow  
 Built at DALMUIR By whom MESSRS W<sup>M</sup> BEARDMORE & CO. L<sup>TD</sup> When built 1921  
 Owners THE ANCHOR LINE L<sup>TD</sup> (HENDERSON BROS.) Owners' Address \_\_\_\_\_  
 Yard No. 584 Electric Light Installation fitted by MESSRS W<sup>M</sup> BEARDMORE & CO. L<sup>TD</sup> When fitted 1921

## DESCRIPTION OF DYNAMO, ENGINE, ETC.

— TOTAL K.W. : 786 —

MAIN:— 2-375 K.W. D.C. COMPOUND WOUND GENERATOR, 1000 R.P.M., DIRECT COUPLED TO TURBINE ENGINE 500 H.P. 9300/1000 R.P.M.

EMERGENCY:— 1-36 K.W. D.C. " " " 750 " " " " THORNYCROFT OIL ENGINE

Capacity of Dynamo MAIN:— 1700 AMPS AT 220 VOLTS EMERG:— 160 AMPERES AT 225 VOLTS (CONTINUOUS CURRENT)

Where is Dynamo fixed EMERG:— COMPARTMENT AFT "B" DECK. Whether single or double wire system is used 3 WIRE INSULATED

Position of Main Switch Board ENGINE ROOM ON SPECIAL PLATFORM having switches to groups SEE SHEET (2) of lights, &c., as below

Positions of auxiliary switch boards and numbers of switches on each 4 ON "C" DECK LETTERED "A", "B", "C", "D" AND 2 ON "A" DECK LETTERED "E" & "F"  
16 SWITCHES & 7 CIRCUIT BREAKERS ON "A" BOARD, 21 SWITCHES ON "B", 24 SWITCHES ON "C", 27 SWITCHES & 4 CIRCUIT BREAKERS ON "D", 11 SWITCHES & 9 CIRCUIT BREAKERS ON "E", AND 7 SWITCHES ON "F" BOARD  
 NO FUSES BUT CIRCUIT

If fuses are fitted on main switch board to the cables of main circuit BREAKER FITTED 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 YES and constructed to fuse at an excess of 25 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 2516 arranged in the following groups:—

A	2000 GENERAL lights each of	30 WATTS	requiring a total current of	600	Amperes
B	500 EMERGENCY lights each of	30 "	requiring a total current of	160	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
	2 Mast head light with 1 lamp each of	32	candle power requiring a total current of	.7	Amperes
	2 Side light with 1 lamp each of	32	candle power requiring a total current of	.7	Amperes
	12 Cargo lights of (CLAMP PER CLUSTER) 180 WATTS EACH CLUSTER		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 Wheel House.

## DESCRIPTION OF CABLES.

Main cables carrying 1500 Amperes, comprised of 91 wires, each .093 INS S.W.G. diameter, .6 square inches total sectional area  
 Branch cables carrying 160 Amperes, comprised of 37 wires, each .085 INS. S.W.G. diameter, .2 square inches total sectional area  
 Branch cables carrying 50 Amperes, comprised of 19 wires, each .064 " S.W.G. diameter, .06 square inches total sectional area  
 Leads to lamps carrying 5 Amperes, comprised of 3 wires, each .029 " S.W.G. diameter, .002 square inches total sectional area  
 Cargo light cables carrying 5 Amperes, comprised of 7 wires, each .044 " S.W.G. diameter, .01 square inches total sectional area

## DESCRIPTION OF INSULATION, PROTECTION, ETC.

V.I.R TAPED AND LEAD COVERED  
V.I.R TAPED AND BRAIDED

Joints in cables, how made, insulated, and protected NIL.

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 CONDUIT TUBING AND CASING AND CABLES CLIPPED ON PORCELAIN INSULATORS.

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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 RUN IN CONDUIT TUBING

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

What special protection has been provided for the cables near boiler casings LEAD COVERED ON PERFORATED PLATING

What special protection has been provided for the cables in engine room LEAD COVERED ON PERFORATED PLATING & CONDUIT BELOW FLOOR PLATES

How are cables carried through beams LEAD BUSHES through bulkheads, &c. W.T. GLANDS & LEAD BUSHES

How are cables carried through decks IN 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 CONDUIT TUBING

Are any lamps fitted in coal bunkers or spaces which may at times be used for cargo, coals, or baggage YES

If so, how are the lamp fittings and cable terminals specially protected BY CAST IRON COVERS

Where are the main switches and fuses for these lights fitted OUTSIDE SPACES

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 FIXED TO SOCKET, PORTABLE TO LAMP How fixed IN CONDUIT TO SOCKET

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 —, and with an amperemeter —, fixed —

CIRCUIT.  
No.  
1  
2  
3  
4  
5  
6  
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9  
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11  
12  
13  
14  
15  
16  
17  
18

**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.

Electrical Engineers Date

**COMPASSES.**

Distance between dynamo or electric motors and standard compass MAIN DYNAMO:- 196 FEET  
EMERGENCY:- " :- 380 FEET NEAREST MOTOR 34 FEET

Distance between dynamo or electric motors and steering compass MAIN DYNAMO:- 184 FEET  
EMERGENCY " :- 368 FEET " " 24 "

The nearest cables to the compasses are as follows:—

A cable carrying	<u>3</u>	Amperes	<u>3</u>	feet from standard compass	<u>3</u>	feet from steering compass
A cable carrying	<u>8</u>	Amperes	<u>12</u>	feet from standard compass	<u>8</u>	feet from steering compass
A cable carrying	<u>3</u>	Amperes	<u>9</u>	feet from standard compass	<u>3</u>	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 ANY course in the case of the standard compass and NIL degrees on ANY course in the case of the steering compass.

FOR WILLIAM BEARDMORE & CO., LIMITED

A. J. Campbell

Builder's Signature. Date March 30<sup>th</sup> 1921

**GENERAL REMARKS.**

This installation is only partly completed, about 75% having been done. Main Generators, Switchboard, Auxiliary Switchboards, Section + distribution boxes having been fitted + all wiring in connection with same. To complete installation passenger accommodation + Saloons to be wired + complete installation finally tested.

Preliminary trials having been carried out. Work to be completed at Cherbourg.

J. S. Rankin

Committee's Minute GLASGOW, -5 APR 1921

Deferred

See 51. 3: 0



HC.  
2-4-21  
1m, 11, 13 - Transfer.

2-37  
GA  
Aox

Glasgow.

T. S. S. CAMERONIA.DETAIL OF MAIN SWITCHBOARD.

CIRCUIT.	FEEDING	CURRENT	CABLE.	AREA AND. SIZE
1	TURNING GEAR	174 AMPS	37/.083	.20 <sup>sq</sup> "
2	BALLAST PUMP	120 "	37/.064	.12 <sup>sq</sup> "
3	SANITARY "	160 "	37/.083	.20 <sup>sq</sup> "
4	STEERING GEAR	160 "	37/.083	.20 <sup>sq</sup> "
5	FORCED DRAUGHT FAN	230 "	37/.103	.30 <sup>sq</sup> "
6	" " "	230 "	37/.103	.30 <sup>sq</sup> "
7	AUX <sup>RY</sup> SWITCH <sup>BD</sup> "A"	728 "	91/.093-2-IN-PAR <sup>EL</sup>	.60 <sup>sq</sup> EACH
8	" " "B"	185 "	37/.083	.20 <sup>sq</sup> "
9	" " "C"	280 "	61/.093	.40 <sup>sq</sup> "
10	" " "D"	564 "	91/.103-2-IN-PAR <sup>EL</sup>	.75 <sup>sq</sup> EACH
11	" " "E"	454 "	91/.103	.75 <sup>sq</sup> "
12	EMERG <sup>ENT</sup> SWITCH <sup>BD</sup>	204 "	61/.103	.50 <sup>sq</sup> "
13	BRINE PUMP WORKSHOP MOTOR	58 "	19/.064	.06 <sup>sq</sup> "
14	N <sup>o</sup> 1. CO <sub>2</sub> M/c.	80 "	19/.083	.10 <sup>sq</sup> "
15	N <sup>o</sup> 2 CO <sub>2</sub> M/c.	80 "	19/.083	.10 <sup>sq</sup> "
16	ENGINE ROOM.	30 "	19/.052	.04 <sup>sq</sup> "
17	BOILER "	22 "	19/.064.	.06 <sup>sq</sup> "
18	SPARE.			

MAIN GENERATOR RATING

2 - 375 KW - 3-WIRE, DIRECT CURRENT. COMPOUND WOUND  
GENERATORS. 220 VOLTS 1700 AMPERES AT 1000 RPM.

## AUXILIARY GENERATOR.

1 - 36 KW 3-WIRE D.C. COMPOUND WOUND GENERATOR  
225 VOLTS 160 AMPERES AT 750 RPM.



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