

## 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 ENGINECapacity of Dynamo MAIN:— 1700 AMPS AT 220 VOLTS EMERG:— 160 AMPERES AT 225 VOLTS CONTINUOUS CURRENT  
MAIN:— IN ENGINE ROOM. Volts, whether continuous or alternating current " "Where is Dynamo fixed EMERG:— COMPARTMENT AFT "B" DECK. Whether single or double wire system is used 3 WIRE INSULATEDPosition of Main Switch Board ENGINE RM ON SPECIAL PLATFORM having switches to groups SEE SHEET (2) of lights, &c., as belowPositions 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 & 3 CIRCUIT BREAKERS ON "E", AND 7 SWITCHES ON "F" BOARD  
NO FUSES BUT CIRCUITIf 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 YESIf 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 YESAre the fuses of non-oxidizable metal YES and constructed to fuse at an excess of 25 per cent over the normal currentAre 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 YESAre all switches and fuses constructed of incombustible materials and fitted on incombustible bases YESTotal number of lights provided for 2516 arranged in the following groups:—A 2000 GENERAL lights each of 30 WATTS candle power requiring a total current of 600 AmperesB 500 EMERGENCY lights each of 30 " candle power requiring a total current of 160 AmperesC lights each of " candle power requiring a total current of " AmperesD lights each of " candle power requiring a total current of " AmperesE lights each of " candle power requiring a total current of " Amperes2 Mast head light with 1 lamp each of 32 candle power requiring a total current of .7 Amperes2 Side light with 1 lamp each of 32 candle power requiring a total current of .7 Amperes12 Cargo lights of (CLUSTER) 180 WATTS EACH CLUSTER candle power, whether incandescent or arc lights INCANDESCENTIf 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.

4 IN PARALLEL  
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 COVEREDV.I.R TAPED AND BRAIDEDJoints 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 NoHow 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 —

## 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.

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:—

| Cable carrying | Amperes | feet from standard compass | feet from steering compass |
|----------------|---------|----------------------------|----------------------------|
| 3              | 3       | 3                          | 3                          |
| 8              | 12      | 8                          | 8                          |
| 3              | 9       | 3                          | 3                          |

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 &amp; CO., LIMITED

Builder's Signature.

Date March 30<sup>th</sup> 1921

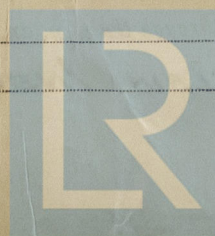
## GENERAL REMARKS.

*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.*

*Surveyor to Lloyd's Register of British and Foreign Shipping.*

Committee's Minute GLASGOW, -5 APR 1921*Deferred**See 51. 3: 0*

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Glasgow.

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

## CIRCUIT.

## AREA AND SIZE

| NO. | FEEDING                        | CURRENT  | CABLE.                         |          |
|-----|--------------------------------|----------|--------------------------------|----------|
| 1   | TURNING GEAR                   | 174 AMPS | 37/.083                        | .20"     |
| 2   | BALLAST PUMP                   | 120 "    | 37/.064                        | .12"     |
| 3   | SANITARY "                     | 160 "    | 37/.083                        | .20"     |
| 4   | STEERING GEAR                  | 160 "    | 37/.083                        | .20"     |
| 5   | FORCED DRAUGHT FAN             | 230 "    | 37/.103                        | .30"     |
| 6   | " " "                          | 230 "    | 37/.103                        | .30"     |
| 7   | AUX. SWITCH "A"                | 728 "    | 91/.093-2-IN-PAR <sup>EL</sup> | .60 EACH |
| 8   | " " "B"                        | 185 "    | 37/.083                        | .20"     |
| 9   | " " "C"                        | 280 "    | 61/.093                        | .40"     |
| 10  | " " "D"                        | 564 "    | 91/.103-2-IN-PAR <sup>EL</sup> | .75 EACH |
| 11  | " " "E"                        | 454 "    | 91/.103                        | .75"     |
| 12  | EMERG. SWITCH "D"              | 204 "    | 61/.103                        | .50"     |
| 13  | BRINE PUMP<br>WORKSHOP MOTOR } | 58 "     | 19/.064                        | .06"     |
| 14  | Nº1. CO <sub>2</sub> M/c.      | 80 "     | 19/.083                        | .10"     |
| 15  | Nº2 CO <sub>2</sub> M/c.       | 80 "     | 19/.083                        | .10"     |
| 16  | ENGINE ROOM.                   | 30 "     | 19/.052                        | .04"     |
| 17  | BOILER "                       | 22 "     | 19/.064.                       | .06"     |
| 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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