

REPORT ON ELECTRIC FITTINGS.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

Received at London Office 10 APR 1929

Date of writing Report 3-4-1929 When handed in at Local Office 10 Port of Dundee

No. in Survey held at Dundee Date, First Survey 1-2-29 Last Survey 3-4-1929
Reg. Book. on the TWIN SCREW FERRY "PERCH ROCK" (Number of Visits 13)

Built at Dundee By whom built Caledon S.S. & E. Co. Ltd. No. 328 When built 1929.
Tons { Gross Net

Owners The Mayor, Aldermen & Burgesses of the Borough of Wallasey Port belonging to Liverpool
Electric Light Installation fitted by Caledon S.S. & E. Co. Ltd. Contract No. 328 When fitted 1929.

System of Distribution Two wires
Pressure of supply for Lighting 110 volts, Heating ✓ volts, Power 110 volts.

Direct or Alternating Current, Lighting Direct- Power Direct-
If alternating current system, state frequency of periods per second ✓

Has the Automatic Governor been tested and found efficient when the whole load is suddenly thrown on or off

Generators, do they comply with the requirements regarding rating ✓, are they compound wound ✓
are they over compounded 5 per cent. ✓, if not compound wound state distance between each generator ✓

Where more than one generator is fitted are they arranged to run in parallel ✓, is an adjustable regulating resistance fitted in series with each shunt field ✓

Are all terminals accessible, clearly marked, and furnished with sockets ✓, are they so spaced or shielded that they cannot be accidentally earthed, short circuited, or touched ✓
Are the lubricating arrangements of the generators as per Rule ✓

Position of Generators Engine Room Starting platform.
is the ventilation in way of the generators satisfactory ✓, are they clear of all inflammable material ✓

if situated near unprotected woodwork or other combustible material, state distance of same horizontally from or vertically above the generators ✓
and ✓, are the generators protected from mechanical injury and damage from water, steam or oil ✓
are their axes of rotation fore and aft ✓

Earthing, are the bedplates and frames of the generating plant efficiently earthed ✓ are the prime movers and their respective generators in metallic contact ✓

Main Switch Boards, where placed Engine Room Starting platform.

If the generators and main switchboard are not placed in the same compartment, is each generator provided with a fuse on each insulated pole as near as possible to the terminals of the generator, additional to that provided on the main switchboard ✓

Switchboards, are they placed in accessible positions, free from inflammable gases and acid fumes ✓
are they protected from mechanical injury and damage from water, steam or oil ✓, if situated near unprotected

woodwork or other combustible material, state distance of same horizontally from or vertically above the switchboards ✓ and ✓
are they constructed wholly of durable, non-ignitable non-absorbent materials ✓, is all insulation of high dielectric strength and of

permanently high insulation resistance ✓, if semi-insulating material is used, are all conducting parts insulated from the slab with mica or micanite or other non-hygroscopic insulating material, and the slab similarly insulated from its framework ✓

and is the frame effectively earthed ✓. Are the fittings as per Rule regarding:— spacing or shielding of live parts ✓
accessibility of all parts ✓, absence of fuses on back of board ✓, proportion of omnibus

bars ✓, individual fuses to voltmeter, pilot or earth lamp ✓, connections of switches ✓

Main Switchgear, description of switchgear for each generator and each outgoing circuit, and arrangement of equalizer switches 1- D.P. 200 amp switch, 2- 200 amp. fuses, 1 D.P. 100 amp. switch, 2- 200 amp. fuses, 5- S.P. 60 amp. switches, 10- 60 amp. fuses. 6- S.P. 30 amp. switches & 12- 30 amp. fuses.

Instruments on main switchboard 2 ammeters 1 voltmeters ✓ synchronising device for paralleling purposes.

Earth Testing, state what means are provided at the main switchboard for indicating the state of the insulation of the system 2- 30 watt M.F. lamps in series, centre point-earthed, controlled by 2-5 amp. 2 way switches.

Switches, Circuit Breakers and Fusible Cut-outs, do these comply with the requirements of the Rules ✓

Joint Boxes Section and Distribution Boards, is the construction, protection, insulation, material, and position of these as per rule ✓



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Cables: Single, twin, concentric, or multicore *Single* are the cables insulated and protected as per Tables IV or V of the Rules *In IV.*

Fall of Pressure, state maximum between bus bars and any point of the installation under maximum load *3 volts*

Cable Sockets and other connections, are the ends of all cables having a sectional area of 0.04 square inch and above provided with soldering sockets *In*

Paper Insulated Cables, If cables are paper covered, is the dielectric of the exposed ends of the conductor protected from moisture by being suitably sealed with insulating compound *✓*

Cable Runs, are the cables fixed as far as possible in accessible positions not exposed to drip or accumulation of water or oil, or to high temperature from boilers, steam pipes, uptakes or other hot objects, or to avoidable risk of mechanical damage *In*

Support and Protection of Cables, state how the cables are supported and protected *V.I.R. L.C. & L.C. Clipped to Bulkheads.*

L.C.A.B. in Engine Room, Special heat resisting cables in conduit in Boiler Room.

If cables are run in wood casings, are the casings and caps secured by screws *✓* are the cap screws of brass *✓*, are the cables run in separate grooves *✓*. If armoured and lead covered cables are secured by metal clips, are the clips spaced as per Table VIII *In*

Refrigerated Chambers, if lights are fitted, are the cables and fittings in accordance with the special requirements *✓*

Joints in Cables, state if any, and how made, insulated, and protected *none*

Watertight Glands and Deck Tubes, are all cables passing through decks and watertight bulkheads provided with deck tubes or watertight glands *In*

Bushes in Beams and Non-watertight Partitions, where unarmoured cables pass through beams and non-watertight partitions, are the holes efficiently bushed *In* state the material of which the bushes are made *Lead.*

Earthing Connections, state what earthing connections are fitted and their respective sectional areas *✓*

are their connections made as per Rule *✓*

Alternative Lighting, are the groups of lights in the propelling machinery space arranged as per Rule *In*

Emergency Supply, state position and method of control of the emergency supply and how the generator is driven *none*

Navigation Lamps, are these separately wired *In*, controlled by separate switch and separate fuses *In*, are the fuses double pole *In*

are the switches and fuses grouped in a position accessible only to the officers on watch *In*

has each navigation lamp an automatic indicator as per Rule *Tell tale lamp.*

Secondary Batteries, are they constructed and fitted as per Rule *✓*

Fittings, are all fittings on weather decks, in stokeholds and engine rooms and wherever exposed to drip or condensed moisture, watertight *In*

are any fittings placed in spaces in which goods are liable to be stacked in close proximity to them; if so, how are they protected *✓*

are any fittings placed in spaces where inflammable or explosive dust or gases are liable to be present, if so, how are they protected *✓*

how are the cables led *✓*

where are the controlling switches situated *✓*

Searchlight Lamps, No. of *✓*, whether fixed or portable *✓*, are their fittings as per Rule *✓*

Arc Lamps, other than searchlight lamps, No. of *✓*, are their live parts insulated from the frame or case *✓*, are their fittings as per Rule *✓*

Motors, are their working parts readily accessible *In*, are the coils self-contained and readily removable for replacement *In*

are the brushes, brush holders, terminals and lubricating arrangements as per Rule *In*, are the motors placed in well-ventilated compartments in which inflammable gases cannot accumulate and clear of all inflammable material *In*

are they protected from mechanical injury and damage from water, steam or oil *In* are their axes of rotation fore and aft *No.*

if situated near unprotected woodwork or other combustible material, are the motors of the totally enclosed, pipe ventilated, forced draught, drip or flame proof type *Totally enclosed.* if not of this type, state distance of the combustible material horizontally or vertically above the motors *✓* and *✓*

Control Gear and Resistances, are the generator field and motor speed regulators, starters and controllers constructed and fitted as per Rule *✓*

Lightning Conductors, where lightning conductors are required, are these fitted as per Rule *✓*

Ships carrying Oil having a Flash Point less than 150° F. Have the special requirements of the Rules been complied with regarding switches, joint boxes, section and distribution boards, protection of cables, method of distribution, lead of cables, lights and fittings *✓*

If portable lamps for use in dangerous spaces are supplied, are they of a type approved by the Home Office *✓*

PARTICULARS OF GENERATING PLANT.

| DESCRIPTION OF GENERATOR. | No. of | RATED AT | | | | DRIVEN BY | WHERE DRIVEN BY AN INTERNAL COMBUSTION ENGINE. | |
|---------------------------|--------|------------|--------|----------|----------------|-----------------------------|--|----------------------|
| | | Kilowatts. | Volts. | Ampères. | Revs. per Min. | | Fuel Used. | Flash Point of Fuel. |
| MAIN | 1 | 20 | 110 | 182 | 300 | 10x8" Vertical Steam Engine | | |
| AUXILIARY | 1 | 10 | 110 | 91 | 300 | 8x6" do | | |
| EMERGENCY | | | | | | | | |
| ROTARY TRANSFORMER | | | | | | | | |

LIGHTING AND HEATING CONDUCTORS.

| Ref. No. | DESCRIPTION. | No. of Conductors. | Effective Area of each Conductor. Sq. Ins. | COMPOSITION OF STRAND. | | Total Maximum Current. Amperes. | Approximate Length. (Lead and Return.) Feet. | Insulated with | HOW PROTECTED. |
|----------|-------------------------------|--------------------|--|------------------------|-----------|---------------------------------|--|----------------|------------------|
| | | | | No. | Diameter. | | | | |
| | MAIN GENERATOR | 2 | .2 | 37 | .085" | 182 | 40 | Rubber | V.I.R. |
| | EQUALISER CONNECTIONS | | | | | | | | |
| | AUXILIARY GENERATOR | 2 | .075 | 19 | .072" | 91 | 40 | Rubber | V.I.R. |
| | EMERGENCY GENERATOR | | | | | | | | |
| | ROTARY TRANSFORMER | | | | | | | | |
| | AUXILIARY SWITCHBOARDS | | | | | | | | |
| | ENGINE ROOM | 2 | .097 | 7 | .036" | 16 | 10 | Rubber | L.C.A. & Braided |
| | BOILER ROOM | 2 | .007 | 7 | .036" | 8 | 30 | Compound | Braided |
| | ACCOMMODATION | 2 | .007 | 7 | .036" | 10.5 | 40 | Rubber | L.C.A. & Braided |
| | <i>Deck Lights</i> | 2 | .010 | 7 | .044" | 21.8 | 100 | " | " |
| | <i>Navigation</i> | 2 | .007 | 7 | .036" | 4 | 100 | " | " |
| | WIRELESS | | | | | | | | |
| | SEARCHLIGHT | | | | | | | | |
| | <i>Stun</i> MASTHEAD LIGHT | 2 | .002 | 3 | .029" | .36 | 150 | Rubber | Lead Cover. |
| | SIDE LIGHTS | 2 | .002 | 3 | .029" | .36 | 30 | " | " |
| | COMPASS LIGHTS | 2 | .002 | 3 | .029" | .36 | 18 | " | " |
| | POOP LIGHTS | | | | | | | | |
| | CARGO LIGHTS | | | | | | | | |
| | ARC LAMPS | | | | | | | | |
| | HEATERS | | | | | | | | |

MOTOR CONDUCTORS.

| Ref. No. | DESCRIPTION. | No. of Motors. | Effective Area of each Conductor. Sq. Ins. | COMPOSITION OF STRAND. | | Total Maximum Current. Amperes. | Approximate Length. (Lead and Return.) Feet. | Insulated with | HOW PROTECTED. |
|----------|-------------------------|----------------|--|------------------------|-----------|---------------------------------|--|----------------|----------------|
| | | | | No. | Diameter. | | | | |
| | BALLAST PUMP | | | | | | | | |
| | MAIN BILGE LINE PUMPS | | | | | | | | |
| | GENERAL SERVICE PUMP | | | | | | | | |
| | EMERGENCY BILGE PUMP | | | | | | | | |
| | SANITARY PUMP | | | | | | | | |
| | CIRC. SEA WATER PUMPS | | | | | | | | |
| | CIRC. FRESH WATER PUMPS | | | | | | | | |
| | AIR COMPRESSOR | | | | | | | | |
| | FRESH WATER PUMP | | | | | | | | |
| | ENGINE TURNING GEAR | | | | | | | | |
| | ENGINE REVERSING GEAR | | | | | | | | |
| | LUBRICATING OIL PUMPS | | | | | | | | |
| | OIL FUEL TRANSFER PUMP | | | | | | | | |
| | WINDLASS | | | | | | | | |
| | WINCHES, FORWARD | | | | | | | | |
| | WINCHES, AFT | | | | | | | | |
| | STEERING GEAR | | | | | | | | |
| | (a) MOTOR GENERATOR | | | | | | | | |
| | (b) MAIN MOTOR | | | | | | | | |
| | WORKSHOP MOTOR | | | | | | | | |
| | VENTILATING FANS | | | | | | | | |
| | <i>Boiler Room</i> | 3 | .007 | 7 | .036" | 1.5 | 15 | Rubber | L.C.A. & B. |
| | <i>Engine Room</i> | 2 | .007 | 7 | .036" | 1.0 | 30 | " | " |
| | <i>San pumps</i> | 4 | .06 | 19 | .064" | 64 | 100 | " | " |

All Conductors are of annealed copper conforming to British Standard Specification No. 7.

The Insulated Conductors are guaranteed to withstand the immersion and resistance tests specified in the Rules.

The foregoing is a correct description.

W. M. Gillanders

Electrical Engineers.

Date *4/ April / 29*

COMPASSES.

Distance between electric generators or motors and standard compass

50 feet.

Distance between electric generators or motors and steering compass

40 feet.

The nearest cables to the compasses are as follows:—

A cable carrying *4* Ampères feet from standard compass *6* feet from steering compass.

A cable carrying *36* Ampères feet from standard compass *1* feet from steering compass.

A cable carrying Ampères feet from standard compass feet from steering compass.

Have the compasses been adjusted with and without the electric installation at work at full power *Yes*

Has the effect of switching on and off circuits, motors and other electro-magnetic apparatus within the vicinity of the compasses been noted *Yes*

The maximum deviation due to electric currents was found to be *no* degrees on *all* courses in the case of the standard

compass, and *no* degrees on *all* courses in the case of the steering compass.

THE CALEDON SHIPBUILDING & ENGINEERING CO. LTD.

John Hunter

Builder's Signature.

Date *4/ April / 29*

Is this installation a duplicate of a previous case *no* If so, state name of vessel

General Remarks (State quality of workmanship, opinions as to class, &c.)

This Installation

has been efficiently fitted on board in accordance with the Rules.

The materials & workmanship are good.

The installation has been examined under full working conditions and found satisfactory.

It is submitted that this vessel is eligible for THE RECORD.

ELEC. LIGHT.

Plus

12.4.29

Total Capacity of Generators *30* Kilowatts.

The amount of Fee £ *22 : 10* : { When applied for, *9-4-19-29.*

Travelling Expenses (if any) £ *✓* : { When received, *16-4-19-29.*

W. J. Bell
Surveyor to Lloyd's Register of Shipping.

Committee's Minute

TUE. 16 APR 1929

Assigned

Elec Light

1m. 1. 27. — Transfer. (The Surveyors are requested not to write on or bico the space for Committee's Minute.)



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