

Rpt. 13.

No 44399

REPORT ON ELECTRIC FITTINGS.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

Received at London Office.....

Date of writing Report 9.2.1925 When handed in at Local Office 2.3.1925 Port of GLASGOW.

No. in Survey held at GLASGOW. Date, First Survey 9.12.25 Last Survey 20-2-1925
Reg. Book. (Number of Visits.....)

85/49, on the "S. S. TONGARIRO" Tons { Gross 8729
Net 5501

Built at PORT GLASGOW. By whom built W. M. HAMILTON & CO Yard No. 323 When built 1925.

Owners THE NEW ZEALAND SHIPPING CO. Port belonging to PLYMOUTH.

Electric Light Installation fitted by MESSRS TROUP CURTISS & CO Contract No. 323 When fitted 1925.

System of Distribution Two ^{Insulated.} wire Section Board & Distribution Boards.

Pressure of supply for Lighting 110 volts, Heating 110 volts, Power 110 volts.

Direct or Alternating Current, Lighting D.C. Power D.C.

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 Yes

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

Where more than one generator is fitted are they arranged to run in parallel No, is an adjustable regulating resistance fitted in series with each shunt field Yes

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

Position of Generators Platform over Thrust Recces. is the ventilation in way of the generators satisfactory Yes, are they clear of all inflammable material Yes

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 Yes

are their axis of rotation fore and aft Yes

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

Main Switch Boards, where placed After bulkhead of Dynamo 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 Yes, are they protected from mechanical injury and damage from water, steam or oil Yes, 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, incombustible non-absorbent materials Yes, is all insulation of high dielectric strength and of permanently high insulation resistance Yes, if semi-insulating material is used, are all conducting parts connected to one pole insulated from the slab with mica or micanite and the slab similarly insulated from its framework and is the frame effectively earthed Yes

Are the following fittings as per Rule, viz.:— spacing or shielding of live parts Yes, accessibility of all parts Yes, absence of fuses on back of board Yes, proportion of omnibus bars Yes, individual fuses to voltmeter, pilot or earth lamp Yes, connections of switches Yes

Main Switchgear, description of switchgear for each generator and each outgoing circuit, and arrangement of equalizer switches

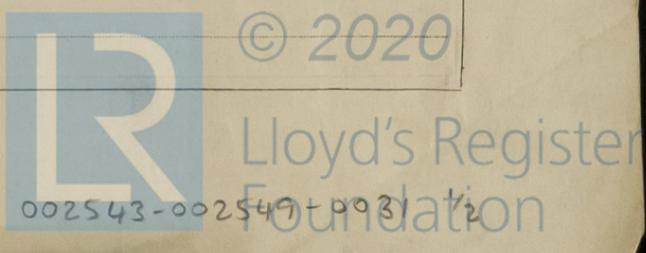
Each Generator. — Single Pole switch fuse on each main
Each Outgoing Circuit — Single pole fuse bridge on each main, and S.P. selective two way switch

Instruments on main switchboard Two ammeters Two 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 Earth lamps connected to either generator by two way switch

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

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



Insulation of Cables, state type of cables, single or twin *Both* are the cables insulated and protected as per Tables III or IV of the Rules *Yes*

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

Cable Sockets and other connections, are the ends of all cables having a sectional area of 0.007 square inch and above provided with soldering sockets *Yes*

Paper Insulated Cables, If cables are paper covered, is the dielectric at 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 *Yes*

Support and Protection of Cables, state how the cables are supported and protected *Lead covered or lead covered and wire armoured. Secured by clips and screws.*

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 VI *Yes*

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 *Yes*

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

Earthing Connections, state what earthing connections are fitted and their respective sectional areas *None*

_____, are their connections made as per Rule _____

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

Emergency Supply, state position and method of control of the emergency supply and how the generator is driven _____

Navigation Lamps, are these separately wired *Yes*, controlled by separate switch and separate fuses *Yes*

are the fuses double pole *Yes*, are the switches and fuses grouped in a position accessible only to the officers on watch *Yes*

has each navigation lamp an automatic indicator as per Rule *Yes*, are separate screens provided for the use of oil and electric side lights *Yes*

are separate oil lanterns provided for the mast head lights and side lights *Yes*

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

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 *None so fitted*

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 *Yes*, are the coils self-contained and readily removable for replacement *Yes*

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

are they protected from mechanical injury and damage from water, steam or oil *Yes* are their axis of rotation fore and aft *Yes*

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 _____, 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 as per Rule *Yes*

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 | Two | 25 | 110 | 228 | 550 375 | Eucl. Recip. Engine | | |
| AUXILIARY | | | | | | | | |
| 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 | Two | .3 | ✓ | 37 | .103 | 160 | 36 each | VSR. L.C. Iron Tube |
| | AUXILIARY GENERATOR | | | | | | | | |
| | EMERGENCY GENERATOR | | | | | | | | |
| | ROTARY TRANSFORMER | | | | | | | | |
| | AUXILIARY SWITCHBOARDS | Two | .0225 | ✓ | 7 | .064 | 21 | 50 | VSR L.C. + A |
| | ENGINE ROOM | Two | .01 | ✓ | 7 | .044 | 12 | 200 | VSR L.C. + A |
| | BOILER ROOM | Two | .0225 | ✓ | 7 | .064 | 15 | 400 | VSR L.C. + A |
| | Saloon | Two | .0225 | ✓ | 7 | .064 | 5 | 450 | VSR L.C. + A |
| | Navigation | Two | .01 | ✓ | 7 | .044 | 13 | 200 | VSR L.C. + A |
| | Friendship Aftcom. | Two | .01 | ✓ | 7 | .044 | 6 | 400 | VSR L.C. + A |
| | Aftcom | Two | .01 | ✓ | 7 | .044 | 5 | 150 | VSR L.C. + A |
| | Refrig Eng Room | Two | .01 | ✓ | 7 | .044 | | | VSR L.C. + A |
| | WIRELESS | Two | .0225 | ✓ | 7 | .064 | 14 | 400 | VSR Wire Armoured |
| | SEARCHLIGHT | Two | .003 | ✓ | 3 | .036 | .6 each | 600 each | VSR Wire Armoured + Lead |
| | MASTHEAD LIGHT | Two | .003 | ✓ | 3 | .036 | .6 | 80 | VSR Lead covered |
| | SIDE LIGHTS | Two | .003 | ✓ | 3 | .036 | .2 | 40 | VSR " " |
| | COMPASS LIGHTS | Two | .003 | ✓ | 3 | .036 | .6 | 200 | VSR Wire Armoured + Lead |
| | POOP LIGHTS | Two | .003 | ✓ | 3 | .036 | .6 | 400 | VSR |
| | CARGO LIGHTS | Two | .0225 | ✓ | 7 | .064 | 15 | 400 | VSR |
| | 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 | | | | | | | | |
| | WORKSHOP MOTOR | One | .0225 | ✓ | 7 | .064 | 15.5 | 90 | VSR L.C. + A |
| | VENTILATING FANS | Two | .0225 | ✓ | 7 | .064 | 6.5 each | 200 each | VSR L.C. + A |
| | Oil Purifier Motor | One | .007 | ✓ | 7 | .036 | 7 | 80 | VSR L.C. + A |
| | Cumberland Process | Two | .0225 | ✓ | 7 | .064 | 5 each | 40 | VSR L.C. + A |

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.

For TROUP, CURTIS & CO LTD

J Ryan.

Electrical Engineers.

Date February 21st 1925

COMPASSES.

Distance between electric generators or motors and standard compass 220 ft.

Distance between electric generators or motors and steering compass 200.

The nearest cables to the compasses are as follows:—

A cable carrying 20 Ampères 20 feet from standard compass 18 feet from steering compass.

A cable carrying 5 Ampères 18 feet from standard compass 12 feet from steering compass.

A cable carrying .2 Ampères in feet from standard compass in 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 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.

WILLIAM HAMILTON & CO., LIMITED.

W. Hamilton

Builder's Signature.

Date 26th February 1925.

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 fitted on board under special survey tested under full working conditions and found satisfactory. The workmanship was found to be good and sound.

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

J. D. C. 4/3/25.

Total Capacity of Generators 50 Kilowatts

The amount of Fee ... £ 27-10-0

Travelling Expenses (if any) £ : : Greenwich 7.2.25. hand

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

Committee's Minute GLASGOW 8-MAR 1925

Assigned Elec Light.

A.L. 2/3/25.

Im. 924—Transfer. (The Surveyors are requested not to write on or below the space for Committee's Minute.)

