

REPORT ON ELECTRIC FITTINGS.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

W.F.O. 7 MAY 1924

Received at London Office

Date of writing Report 19 When handed in at Port of 6/5/24 Port of NEWCASTLE-ON-TYNE

No. in Survey held at NEWCASTLE-ON-TYNE Date, First Survey 24 Oct. 1923 Last Survey 28 April 1924
Reg. Book. Supt. (Number of Visits 22)

41147 on the S.S. "Dilawa" Tons { Gross 10280
Net 6400

Built at Newcastle built Hawthorn Leslie & Co. Yard No. 530 When built 1924

Owners British India Steam Navigation Co. Port belonging to Glasgow

Electric Light Installation fitted by Hawthorn Leslie & Co. Contract No. 530 When fitted 1924

System of Distribution Double wire system

Pressure of supply for Lighting 110 volts, Heating 110 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 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 Engine room starboard side

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 Engine room starboard side

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

permanent 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 yes, 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 Train circuits

fitted with double pole switch + fuses, and all outgoing circuits fitted with two way

single pole switches + double pole fuses

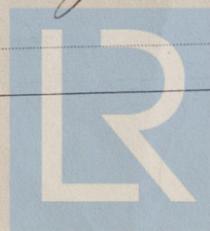
Instruments on main switchboard 2 ammeters 2 voltmeters synchronising device for paralleling purposes.

Earth Testing, state what means are provided at the main switchboard for indicating the state of the insulation of the system Earth lamps

coupled to earth through switches + fuses.

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



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Insulation of Cables, state type of cables, single or twin ^{single} 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 *3.89 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 *all cable runs in accessible positions free from accumulation of oil & water*

Support and Protection of Cables, state how the cables are supported and protected *Cables run on metal trays & clipped up with brass clips*

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

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

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

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 *fibre*

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 *yes*

Emergency Supply, state position and method of control of the emergency supply and how the generator is driven *Emergency generator fitted on Boat Deck. Generator direct coupled to "Record" Paraffin Engine. Change over switches fitted for main board of emergency supply.*

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*

are any fittings placed in spaces where inflammable or explosive dust or gases are liable to be present, if so, how are they protected *none*, how are the cables led

where are the controlling switches situated

Searchlight Lamps, No. of *1*, whether fixed or portable *portable*, are their fittings as per Rule

Arc Lamps, other than searchlight lamps, No. of *0*, are their live parts insulated from the frame or case *yes*, 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 *yes*

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 *yes*, 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 | 2 | 70 | 110 | 636 | 450 | Steam engine | | |
| AUXILIARY | | | | | | | | |
| EMERGENCY | 1 | 16 | 110 | 145 | 1000 | Paraffin-Paraffin engine | Paraffin | |
| 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 Ampères | Approximate Length (Lead and Return) Feet | Insulated with | HOW PROTECTED |
|----------|-------------------------------------|-------------------|---|-----------------------|----------|-------------------------------|---|----------------|-------------------------|
| | | | | No. | Diameter | | | | |
| | MAIN GENERATOR No. 1 | 4 | 4985 | 61 | .103 | 600 | 100 | Y.I.R. | Lead covered |
| | MAIN GENERATOR No. 2 | 4 | 4985 | 61 | .103 | 600 | 60 | 50 | 50 |
| | EMERGENCY GENERATOR | 2 | 3024 | 37 | .103 | 145 | 50 | 50 | 50 |
| | ROTARY TRANSFORMER | | | | | | | | |
| | AUXILIARY SWITCHBOARDS | | | | | | | | |
| H | ENGINE ROOM | 2 | .02214 | 7 | .064 | 37.4 | 100 | 50 | Lead cov, arm & braided |
| | BOILER ROOM | | | | | | | | |
| P | Navigation | 2 | .02214 | 7 | .064 | 8 | 400 | 50 | Lead covered |
| M | Emergency feeds | 2 | .01462 | 7 | .036 | 15.8 | 150 | 50 | 50 |
| L | Emergency board feeds | 2 | .01462 | 7 | .036 | 16.34 | 200 | 50 | 50 |
| K | Boiler pumps, Vent fans, Bath motor | 2 | .07592 | 19 | .072 | 7.4 | 240 | 50 | Lead cov, arm & braided |
| F | Engine room lighting | 2 | .0396 | 19 | .052 | 52 | 100 | 50 | 50 |
| E | 2nd class Eng. Acc | 2 | .0396 | 19 | .052 | 41.1 | 120 | 50 | 50 |
| F | Ventilating fans | 2 | .0600 | 19 | .064 | 68.62 | 120 | 50 | 50 |
| D | 1st class officers Acc | 2 | .14780 | 37 | .072 | 101.24 | 480 | 50 | 50 |
| | | 2 | .1009 | 19 | .083 | 97.4 | 400 | 50 | 50 |
| N | WIRELESS (Motor End) | 2 | .02214 | 7 | .064 | 34 | 290 | 50 | Lead covered |
| | SEARCHLIGHT | | | | | | | | |
| | MASTHEAD LIGHT | 2 | .00194 | 3 | .029 | 1.2 | 600 | 50 | Lead cov, arm & braided |
| | SIDE LIGHTS | 2 | .00194 | 3 | .029 | 1.2 | 92 | 50 | Lead covered |
| | COMPASS LIGHTS | 2 | .00194 | 3 | .029 | .1 | 20 | 50 | 50 |
| G | POOP LIGHTS | 2 | .02214 | 7 | .064 | 18.6 | 350 | 50 | Lead cov, arm & braided |
| J | CARGO LIGHTS | 2 | .02214 | 7 | .064 | 30.0 | 230 | 50 | 50 |
| A | ARC LAMPS | 2 | .1478 | 37 | .072 | 94.0 | 600 | 50 | 50 |
| B | HEATERS | 2 | .1964 | 37 | .083 | 163.0 | 600 | 50 | 50 |
| C | | 2 | .1964 | 37 | .083 | 163.0 | 230 | 50 | 50 |

MOTOR CONDUCTORS.

| Ref. No. | DESCRIPTION | No. of Motors | Effective Area of each Conductor Sq. Ins. | COMPOSITION OF STRAND | | Total Maximum Current Ampères | Approximate Length (Lead and Return) Feet | Insulated with | HOW PROTECTED |
|----------|-------------------------|---------------|---|-----------------------|----------|-------------------------------|---|----------------|-------------------------|
| | | | | No. | Diameter | | | | |
| | BALLAST PUMP | | | | | | | | |
| | MAIN BILGE LINE PUMPS | | | | | | | | |
| | GENERAL SERVICE PUMP | | | | | | | | |
| | EMERGENCY BILGE PUMP | 1 | .1009 | 19 | .08 | 90 | 400 | Y.I.R. | Lead cov, arm & braided |
| | 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 | 1 | .00455 | 7 | .029 | 13 | 120 | Y.I.R. | 50 |
| | VENTILATING FANS 7 1/2" | 2 | .00299 | 3 | .036 | 3 | 100 | 50 | 50 |
| | Boiler fans 15" | 5 | .01046 | 7 | .024 | 15.5 | 160 | 50 | 50 |
| | 50 12 1/2" | 2 | .00299 | 3 | .036 | 8 | 80 | 50 | 50 |
| | 50 12 3/4" | 2 | .00299 | 3 | .036 | 8 | 50 | 50 | 50 |

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.

R. & W. HAWTHORN, LESLIE & CO LIMITED.

John T. Salway
 DIRECTOR

Electrical Engineers.

Date *2/2/24*

COMPASSES.

Distance between electric generators or motors and standard compass *main generator 174 feet Wireless motor 50 feet*

Distance between electric generators or motors and steering compass " " *182 feet* " " *56 feet*

The nearest cables to the compasses are as follows:—

A cable carrying *.1* Ampères *on the* ~~feet from~~ standard compass *8* feet from steering compass.

A cable carrying *.1* Ampères *on the* ~~feet from~~ ^{steering} standard compass *8* feet from ~~steering~~ ^{standard} compass.

A cable carrying *7.0* Ampères *7* feet from standard compass *5* 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 *all* courses in the case of the standard compass, and *nil* degrees on *all* courses in the case of the steering compass.

R. & W. HAWTHORN, LESLIE & CO LIMITED.

John T. Salway
 DIRECTOR

Builder's Signature.

Date *26th May 1924*

Is this installation a duplicate of a previous case *yes*. If so, state name of vessel *Dalma*.

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

The above installation is in accordance with the Society's Rules. The vessel is eligible in my opinion for notation elec light, wireless

It is submitted that this vessel is eligible for THE RECORD. The light
W.T. Badger
7/5/24

Total Capacity of Generators *156* Kilowatts

The amount of Fee ... £ *34 : 6* : *3/5/24*
 Travelling Expenses (if any) £ : : *See debit book*

W.T. Badger
 Surveyor to Lloyd's Register of Shipping.

Committee's Minute *21 MAY 19 1924*

Assigned

Im. 9. 22.—Transfer.
 (The Surveyors are requested not to write on or below the space for Committee's Minute.)