

# REPORT ON ELECTRIC FITTINGS.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

Date of writing Report 19 When handed in at Local Office 19. 11. 1923 Port of *Middlesbrough* Received at London Office *THU. 22 NOV. 1923*

No. in Survey held at *Haverton Hill on Tees* Date, First Survey *whole* Last Survey *building* 19  
Reg. Book. on the *Steel Screw Steamer "Eldon"* (Number of Visits.....)

Built at *Haverton Hill on Tees* By whom built *Furness Shipbuilding Co Ltd* Yard No. *48* When built *1923*

Owners *Messrs Furness Withy & Co Ltd* Port belonging to *Newcastle on Tyne*

Electric Light Installation fitted by *Furness Shipbuilding Co Ltd* Contract No. When fitted *1923*

System of Distribution *Double Wire Insulated*

Pressure of supply for Lighting *100* volts, Heating \_\_\_\_\_ volts, Power \_\_\_\_\_ volts.

Direct or Alternating Current, Lighting *Direct* Power \_\_\_\_\_

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. *Level*, 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 *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 *Starboard Side of Engine Room*

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 *Engineers Store Starboard Side of Engine Room*

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 \_\_\_\_\_, is all insulation of high dielectric strength and of permanently high insulation resistance \_\_\_\_\_, if semi-insulating material is used, are all conducting parts connected to one pole insulated from the slab with mica or micumite 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

*Double Pole Switch + Fuses for Generator + each outgoing circuit*

*(Fuses Porcelain N.O. Pattern)*

Instruments on main switchboard *1* 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 *Two 100p lamps in series + middle point earthed, connected to each bus-bar by Switch + Fuse*

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 wires are the cables insulated and protected as per Tables III or IV of the Rules Table III

Fall of Pressure, state maximum between bus bars and any point of the installation under maximum load 5 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. Main feeder cables are run along underside of Hatch Beaming Bars in Hoods. All cables which are exposed or where heat or moisture is likely to accumulate, are lead covered, armoured & braided.

Support and Protection of Cables, state how the cables are supported and protected. Lead covered & armoured cables are supported by means of galvanised iron clips. Lead covered cables supported by means of brass clips & screws. 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 spaced 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. Porcelain junction boxes protected with L.S. covers

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

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

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 \_\_\_\_\_

Are 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 \_\_\_\_\_, are the coils self-contained and readily removable for replacement \_\_\_\_\_

are the brushes, brush holders, terminals and lubricating arrangements as per Rule \_\_\_\_\_, 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 \_\_\_\_\_ are their axis of rotation fore and aft \_\_\_\_\_

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 \_\_\_\_\_

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

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.

Table with columns: DESCRIPTION OF GENERATOR, No. of, RATED AT (Kilowatts, Volts, Ampères, Revs per Min.), DRIVEN BY, WHERE DRIVEN BY AN INTERNAL COMBUSTION ENGINE (Fuel Used, Flash Point of Fuel). Includes entries for MAIN, AUXILIARY, EMERGENCY, and ROTARY TRANSFORMER.

LIGHTING AND HEATING CONDUCTORS.

Table with columns: Ref. No., DESCRIPTION, No. of Conductors, Effective Area of each Conductor (Sq. Ins.), COMPOSITION OF STRAND (No., Diameter), Total Maximum Current (Amperes), Approximate Length (Lead and Return) (Feet), Insulated with, HOW PROTECTED. Includes entries for MAIN GENERATOR, AUXILIARY GENERATOR, EMERGENCY GENERATOR, ROTARY TRANSFORMER, AUXILIARY SWITCHBOARDS, ENGINE ROOM, BOILER ROOM, WIRELESS, SEARCHLIGHT, MASTHEAD LIGHT, SIDE LIGHTS, COMPASS LIGHTS, POOP LIGHTS, CARGO LIGHTS, ARC LAMPS, HEATERS.

MOTOR CONDUCTORS.

Table with columns: Ref. No., DESCRIPTION, No. of Motors, Effective Area of each Conductor (Sq. Ins.), COMPOSITION OF STRAND (No., Diameter), Total Maximum Current (Amperes), Approximate Length (Lead and Return) (Feet), Insulated with, HOW PROTECTED. Includes entries for 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, VENTILATING FANS.

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.

FURNESS SHIPBUILDING CO. LIMITED

*P. S. Glover*

Electrical Engineers.

Date *15 Nov 23*

COMPASSES.

Distance between electric generators or motors and standard compass *160 feet*

Distance between electric generators or motors and steering compass *140 feet*

The nearest cables to the compasses are as follows:—

A cable carrying *6* Ampères *3* feet from standard compass *feet* from steering compass.

A cable carrying *3* Ampères *inside* feet from standard compass *feet* from steering compass.

A cable carrying *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

The maximum deviation due to electric currents was found to be *nil* degrees on *all* course in the case of the standard

compass, and *nil* degrees on *all* course in the case of the steering compass.

FURNESS SHIPBUILDING CO. LIMITED,

*Am Quennie*

Builder's Signature.

Date *15/11/1923*

Secretary.

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*)

*in accordance with the Rules, is of good workmanship and materials throughout and has been tested under full working conditions and found satisfactory.*

It is submitted that  
 this vessel is suitable for  
 THE RECORD. *Elec. Dept.*

*22/11/23.*

Total Capacity of Generators *6* Kilowatts

The amount of Fee ... £ *6 : 0 : 0* When applied for, *19.11.1923*

Travelling Expenses (if any) £ *✓* : : *See debit book* When received, *1923*

*R. Failey*  
 Surveyor to Lloyd's Register of Shipping.

Committee's Minute *FRI. JAN. 4 1924*

Assigned *Elec. Lt.*

TUE MAR 11 1924  
 FRI 23 MAY 1924



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 Foundation

1m. 8. 22.—Transfer.  
 (The Surveyors are requested not to write on or below the space for Committee's Minute.)