

REPORT ON ELECTRICAL EQUIPMENT.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

FEB -7 1939

Received at London Office

Date of writing Report 19 When handed in at Local Office 6. 2. 1939 Port of Belfast.
 No. in Survey held at Belfast. Date, First Survey 21st Sept 1938 Last Survey 30th Jan 1939
 Reg. Book. (Number of Visits 20)
 on the Steel Single Screw Motor Vessel "Gairndale"
 Tons { Gross 5128.88
 Net 4826.32
 Built at Belfast. By whom built Harland & Wolff, Ltd., Yard No. 1014 When built 1938-9.
 Owners Admiralty. Port belonging to London.
 Electric Light Installation fitted by Harland & Wolff, Ltd., Contract No. 1014 When fitted 1938-9.
 Is the Vessel fitted for carrying Petroleum in bulk yes.

System of Distribution Two Wire Direct Current, ✓

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 Yes ✓

Generators, do they comply with the requirements regarding temperature rise 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 yes ✓, is an adjustable regulating resistance fitted in

series with each shunt field yes ✓ Have certificates of test results for machines under 100 kw. been submitted and

approved yes ✓ Have machines over 100 kw. been inspected by the Surveyors during manufacture and testing —

Have certificates for generators under 100 kw. been supplied and approved yes ✓

Are all terminals accessible, clearly marked, and furnished with sockets yes ✓, are they so spaced or shielded that they cannot be accidentally earthed,

short circuited, or touched yes ✓ Are the lubricating arrangements of the generators as per Rule yes ✓

Position of Generators Main & Emergency Generators in Motor 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 —, are their axes 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 on Platform Starbd. side of Motor 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, non-ignitable non-absorbent

materials yes ✓, is all insulation of high dielectric strength and of permanently high insulation resistance yes ✓

is it of an approved type yes ✓, 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 yes ✓, is the non-hygroscopic insulating material of an approved

type yes ✓, and is the frame effectively earthed yes ✓ Are the fittings as per Rule regarding:— spacing or shielding of live parts

yes ✓, accessibility of all parts yes ✓, absence of fuses on back of board yes ✓, temperature rise of

omnibus bars yes ✓, individual fuses to voltmeter, pilot or earth lamp yes ✓, are moving parts of switches alive in the

"off" position No ✓ are all screws and nuts securing connections effectively locked yes ✓ are any fuses fitted on the live side of

switches No ✓ Main Switchgear, description of switchgear for each generator and each outgoing circuit, and arrangement of equalizer switches

D.P.O.L. Reverse Current Circuit Breakers, Time Limits Non-Automatic Equalizer Switch ✓

Are turbine driven generators fitted with emergency trip switch as per rule — Are cupboards or compartments containing switchboards composed of

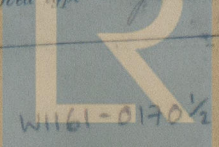
fire-resisting material or lined with approved material — Instruments on main switchboard 4 ✓ ammeters 3 ✓

voltmeters — synchronising device for paralleling purposes. For compound machines is the ammeter connected on the opposite pole to equaliser connection

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

Earth Indicating Lamps ✓ Switches, Circuit Breakers and Fusible Cut-outs, have the reversed

do these comply with the requirements of the Rules. yes ✓ are the fusible cutouts of an approved type yes ✓



current protection devices been tested under working conditions *Yes* are all fuses labelled as per rule *Yes*

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

Cables: Single, twin, ~~concentric~~, or multicore *Yes* are the cables insulated and protected as per Tables IV, V, X, XI, XII or XIII of the Rules *Yes*

If the cables are insulated otherwise than as per Rule, are they of an approved type *Yes* **Fall of Pressure,** state maximum between bus bars and any point of the installation under maximum load *5.5 Stern Light*

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

Paper Insulated and Varnished Cambric Insulated Cables, If conductors are paper or varnished cambric insulated, is the dielectric at the exposed ends of the conductor protected from moisture by being suitably sealed with insulating compound *Yes*, or waterproof insulating tape *Yes*

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* are cables laid under machines or floorplates *Yes* if so, are they adequately protected *Yes*

Are cables in machinery spaces, galleys, lavatories, bathrooms and lavatories lead covered or run in conduit *L.S.A. Motor Room L.C. in Conduit in exposed place L.C. in Bathrooms.*

Support and Protection of Cables, state how the cables are supported and protected *Perforated Plating + Flanged pipes*

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 VIII *Yes*

Refrigerated Chambers, are the cables and fittings in accordance with the special requirements *Yes*

Joints in Cables, state if any, and how made, insulated, and protected *Properly constructed + insulated junction boxes*

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 Partitions, 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 *Yes* are their connections made as per Rule *Yes*

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 directly coupled to Diesel Engine, in Motor Room. Controlled from Main Switchboard in Motor Room.*

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

are any fittings placed in spaces where inflammable or explosive dust or gases are liable to be present, if so, how are they protected *Yes* *Guarded Fittings* how are the cables led *L.C. in galv. Iron Conduit.*

where are the controlling switches situated *outer spaces*

are all fittings suitably ventilated *Yes* are all switches and lampholders constructed wholly of non-ignitable, non-absorbent materials *Yes*

Heating and Cooking Appliances, are they constructed and fitted as per Rule *Yes* are air heaters constructed and fitted as per Rule *Yes*

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

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 axes of rotation fore and aft *Generally* 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* and *Yes* if not of this type, state distance of the combustible material horizontally or vertically above the motors *Yes*

have machines of over 100 BHP been inspected by the Surveyors during manufacture and testing *Yes* have certificates for all motors for essential services been supplied and approved *Yes*

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

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 *Yes* are all fuses of the filled cartridge type *Yes* are they of an approved type *Yes*

If portable lamps for use in dangerous spaces are supplied, are they of a self-contained, battery-fed flameproof type approved for use in dangerous spaces *Yes*

Spare Gear, if the vessel is for open sea service have spares been supplied as per Rule *Yes* are they suitably stored in dry situations *Yes*

PARTICULARS OF GENERATING PLANT.									
DESCRIPTION OF GENERATOR.	No. of	RATED AT				DRIVEN BY	WHERE DRIVEN BY AN INTERNAL COMBUSTION ENGINE.		
		Kilowatts.	Volts.	Amps.	Revs. per Min.		Fuel Used.	Flash Point of Fuel.	
MAIN	2	25	110	227	500	Steam Engine	—	—	
AUXILIARY									
EMERGENCY	1	8	110	73	750	Diesel Engine	—	—	
ROTARY TRANSFORMER									

GENERATOR, LIGHTING AND HEATING CONDUCTORS.									
DESCRIPTION.	CONDUCTORS.		COMPOSITION OF STRAND.		TOTAL MAXIMUM CURRENT. AMPERES.		Approximate Length. (Lead and Return.) Feet.	Insulated with	HOW PROTECTED.
	No. per Pole.	Total Nominal Area per Pole Sq. Ins.	No.	Diameter.	Circuit.	Rule.			
MAIN GENERATOR	1	.3	37	.103	227	240	60	V.I.R.	L.S.A.
EQUALISER CONNECTIONS	1	.1	19	.083	—	118	30	V.I.R.	L.S.A.
AUXILIARY GENERATOR									
EMERGENCY GENERATOR	1	.06	19	.064	73	83	70	V.I.R.	L.S.A.
ROTARY TRANSFORMER									
MOTOR GENERATOR									
ENGINE ROOM									
BOILER ROOM									
AUXILIARY SWITCHBOARDS									
SECTION BOXES									
SECTION BOX No 1	1	.15	37	.072	118	152	600	V.I.R.	L.S.A.
SECTION BOX No 2	1	.04	19	.052	23	64	120	V.I.R.	L.S.A.
SECTION BOX No 3	1	.06	19	.064	75	83	150	V.I.R.	L.S.A.
SECTION BOX No 4	1	.03	19	.044	48	53	120	V.I.R.	L.S.A.
ACCOMMODATION									

The Electrical Equipment is installed in accordance with the approved plans.

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

The foregoing is a correct description.



Electrical Engineers.

Date *January 26th '39*

COMPASSES.

Minimum distance between electric generators or motors and standard compass *30 ft. to Ventilation Fan.*

Minimum distance between electric generators or motors and steering compass *28 ft. to Ventilation Fan.*

The nearest cables to the compasses are as follows:—

A cable carrying *60* Amperes *7* feet from standard compass *7* feet from steering compass.

A cable carrying *18* Amperes *8* feet from standard compass *in* feet from steering compass. *pedestal.*

A cable carrying *18* Amperes *in* feet from standard compass *8* feet from steering compass. *pedestal*

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



Builder's Signature.

Date *Jan'y. 26d. '39.*

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 and in accordance with the approved plans & has been tested under full working conditions & found satisfactory. The materials and workmanship have been found to be good & sound.*

*Noted
9/2/39.*

Total Capacity of Generators *58* Kilowatts.

The amount of Fee ... £ *28 : 6* : *6* 2/19 39
When applied for,
When received,
Travelling Expenses (if any) £ : : *13* 2/19 39 8/24/39

R. C. Clayton & Charles H. Hunter
Surveyors to Lloyd's Register of Shipping.

Committee's Minute

FRI 10 FEB 1939

Assigned

See F2 machy rpl.



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