

REPORT ON ELECTRIC FITTINGS.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL) WFD. 9 JAN. 1924

Received at London Office

Date of writing Report 21/12/23. 10 When handed in at Local Office H. 1. 1024 Port of GLASGOW.

No. in Survey held at GLASGOW Date, First Survey 16. 10. 23. Last Survey 18. 12. 1923
Reg. Book. (Number of Visits 9)

39192 on the M. V. GUJARAT Tons { Gross 6,700
Net

Built at GOVAN By whom built MESSRS HARLAND & WOLFF Yard No. 610 When built 1923.

Owners MESSRS A. WEIR & CO Port belonging to GLASGOW

Electric Light Installation fitted by MESSRS HARLAND & WOLFF LTD Contract No. 610 When fitted 1923.

System of Distribution Two wire

Pressure of supply for Lighting 220 V. volts, Heating 220 V. volts, Power 220 V. 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 Yes, 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 Main :- Port side of Engine Room. Emergency :- Upper Deck Midship,

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 Port side of Engine Room on gallery above dynamos.

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. 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. Triple pole switch

and D.P. Circuit Breakers for generators, and D.P. Switches with two

S.P. Fuses for each outgoing circuit.

Instruments on main switchboard 3 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. Two lamps and

two linked S.P. switches across bars. Mid point of lamps earthed.

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 *4.2 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 *None used*

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 *Clipped direct to wood bulkheads. Run in sheet iron troughing along decks. Where exposed to heat, moisture etc L.S.A.B. cables used. L.C. checked*
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 *In a special joint box*

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 *Yes*

Earthing Connections, state what earthing connections are fitted and their respective sectional areas *All radiators, bracket frames and cabin portables together with lampholders which come on wood blocks are earthed with 3/036 wire to the ships hull*, 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 *Upper Deck Windships, Driven by a Gardner oil engine. A C.O.S fitted on the Emergency Switchboard giving a supply from either main or emergency dynamos*

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 *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 *Special a.p.*

Magazine fitting fitted in the coal bunkers, how are the cables led in tubing *Yes*

where are the controlling switches situated *above in galley*

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

Arc Lamps, other than searchlight lamps, No. of *1*, are their live parts insulated from the frame or case *Yes*, 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 axis of rotation fore and aft *majority*

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 *Yes* and *Yes*

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 *None*

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*

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

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	3	65	220	295	300	Diesel Engines	Sectul Fuel Oil (closed 215° F. open 258° F.)	
AUXILIARY	-	-	-	-	-	-	-	
EMERGENCY	1	11	220	50	1000	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	1 per pole	.5	61	.103	295	83 (3 leads)	V.I.R.R. Fireproofed	L.S.A.B.
	AUXILIARY GENERATOR	-	-	-	-	-	-	-	-
	EMERGENCY GENERATOR	1 per pole	.06	19	.064	50	45	Rubber	L.S.A.B.
	ROTARY TRANSFORMER	-	-	-	-	-	-	-	-
	AUXILIARY SWITCHBOARDS	2 per pole	.3	37	.103	429	457 (4 leads)	V.I.R.R. Fireproofed	L.S.A.B.
	ENGINE ROOM	1 pole	.007	7	.036	7 1/2	30	Rubber	L.S.A.B.
	BOILER ROOM	-	-	-	-	-	-	-	-
	WIRELESS	1 per pole	.007	7	.036	8.0	192	Rubber	L.S.A.B. & L.C.
	SEARCHLIGHT	"	.06	19	.064	80.0	576	"	L.S.A.B.
	MASTHEAD LIGHT	"	.003	3	.036	.6	580	"	L.S.A.B. & L.C.
	SIDE LIGHTS	"	.003	3	.036	.6	90	"	"
	COMPASS LIGHTS	"	.003	3	.036	.15	40	"	L.C.
	POOP LIGHTS	"	.003	3	.036	.15	48	"	L.S.A.B.
	CARGO LIGHTS	"	.007	7	.036	2.0	320	"	L.S.A.B.
	ARC LAMPS	-	-	-	-	-	-	-	-
	HEATERS	1 per pole	.003	3	.036	2.2	70	"	L.C.

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	1	.06	19	.064	68	66	Rubber	L.S.A.B.
	MAIN BILGE LINE PUMPS	1	.014	7	.052	34	60	"	"
	GENERAL SERVICE PUMP	-	-	-	-	-	-	-	-
	EMERGENCY BILGE PUMP	1	.014	7	.052	32.5	480	Rubber	L.S.A.B.
	SANITARY PUMP	1	.04	19	.052	60	96	"	"
	CIRC. SEA WATER PUMPS	1	.04	19	.052	60	96	"	"
	CIRC. FRESH WATER PUMPS	2	.007	7	.036	15	60	"	"
	AIR COMPRESSOR	1	.6	91	.093	340	61	V.I.R.R. Fireproofed	-
	FRESH WATER PUMP	-	-	-	-	-	-	-	-
	ENGINE TURNING GEAR	1	.0225	7	.064	41	120	Rubber	L.S.A.B.
	ENGINE REVERSING GEAR	-	-	-	-	-	-	-	-
	LUBRICATING OIL PUMPS	2	.0145	7	.052	32	78	Rubber	L.S.A.B.
	OIL FUEL TRANSFER PUMP	1	.007	7	.036	17	84	"	"
	WINDLASS	1	.2	2-37	.083	360	140	"	"
	WINCHES, FORWARD	6	.2	2-37	.083	558	900	"	"
	WINCHES, AFT	5	.2	37	.083	481	300	"	"
	STEERING GEAR	1	.04	19	.052	47	528	"	"
	WORKSHOP MOTOR	-	-	-	-	-	-	"	"
	VENTILATING FANS	1	.007	7	.036	13	60	"	"
	Hot Salt Water Pump	1	.003	(Junc) 3	.036	8	25	"	"
	Oil Purifier	1	.003	"	"	9	120	"	"
	Lathe	1	.003	"	"	6	100	"	"
	Drill	1	.003	"	"	8	70	"	"
	M.T. Door	1	.007	7	.036	24	240	"	"

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 HARLAND & WOLFF, LTD.

John Dickinson
Managing Director

Electrical Engineers.

Date *24th Decr 1923*

COMPASSES.

Distance between electric generators or motors and standard compass *50 ft*

Distance between electric generators or motors and steering compass *48 ft.*

The nearest cables to the compasses are as follows:—

A cable carrying *24* Ampères *12* feet from standard compass *6* feet from steering compass.

A cable carrying *6½* Ampères *12* feet from standard compass *6* feet from steering compass.

A cable carrying *1* Ampères *12* feet from standard compass *6* 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 the* course in the case of the standard compass, and *nil* degrees on *all the* course in the case of the steering compass.

FOR HARLAND & WOLFF, LTD.

John Dickinson
Builder's Signature.
Managing Director.

Date *24th Decr 1923*

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 & found satisfactory. The workmanship was found to be good and sound.

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

Total Capacity of Generators *206.* Kilowatts

The amount of Fee ... £ *36.30* : *4/11/24.* When applied for, 19...

Travelling Expenses (if any) £ : : *See debit book.* When received, 19...

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

Committee's Minute *GLASGOW - 8 JAN 1924*

Assigned *Elec. Light. 13*

Transfer. (Surveys are requested not to write on or below the space for Committee's Minute.)

HC. 4-1-24