

# REPORT ON ELECTRIC FITTINGS.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

Date of writing Report 29/9/1922. When handed in at Local Office 16-10-1922 Port of GLASGOW. Received at London Office WED. 18 OCT. 1922

No. in Survey held at GLASGOW. Date, First Survey 24th May Last Survey 6th Oct 1922. (Number of Visits.....)

Reg. Book. 8839 on the M.Y. "DURENDA" Tons { Gross 7241 Net 4450

Built at PORT GLASGOW. By whom built MESSRS R. DUNCAN & CO. Yard No. 349. When built 1922.

Owners THE BRITISH INDIA. ST. NAV. CO. LTD. Port belonging to GLASGOW.

Electric Light Installation fitted by MESSRS SCOTT & CO. Contract No. 349 When fitted 1922

System of Distribution Double wire. Pressure of supply for Lighting 220 volts, Heating 220 volts, Power 220 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 ✓

Generators, do they comply with the requirements regarding overload ✓, are they compound wound ✓, are they over compounded 5 per cent. ✓, 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 ✓

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

Position of Generators 2 Starboard Side Motor Room + 1 Port Side on Main platform. Is the ventilation in way of the generators satisfactory ✓, are they clear of all inflammable material ✓

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 axis of rotation fore and aft ✓.

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

Main Switch Boards, where placed After the end of Motor Room on 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 ✓, are they protected from mechanical injury and damage from water, steam or oil ✓, 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 micanite and the slab similarly insulated from its framework All conductors are insulated ✓

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

Main Switchgear, description of switchgear for each generator and each outgoing circuit, and arrangement of equalizer switches. Double pole main circuit breaker. Having single pole equalizer switch interlocked with circuit breaker.

Instruments on main switchboard 3 ammeters 3 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. One pair of earth lamps on each generator

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

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



**Insulation of Cables**, state type of cables, single or twin Twin 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 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 No paper insulated cables 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 Protected with sheet iron plating also by galvanised iron tubing & supported on sheet iron trays.

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 No joints.

**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 & Fibre.

**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 No emergency generator fitted but engine room emergency lighting fed from battery.

**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 No, are any fittings placed in spaces where inflammable or explosive dust or gases are liable to be present, if so, how are they protected No, how are the cables led Yes, where are the controlling switches situated Yes.

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

**Arc Lamps**, other than searchlight lamps, No. of Yes, 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 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 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 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, 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.	Amps.	Revs. per Min.		Fuel Used.	Flash Point of Fuel.	
MAIN	3	137	220	630	320/375	4. Cylinder Diesel Eng.			
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. Amps.	Approximate Length. (Lead and Return.) Feet.	Insulated with	HOW PROTECTED.
				No.	Diameter.				
4228/2	MAIN GENERATOR... No. 1	1 pair	1.10	137	.103	630	40	Pure Vulcan Rubber.	L.C. + Armoured
	AUXILIARY GENERATOR								
	EMERGENCY GENERATOR								
	ROTARY TRANSFORMER								
	AUXILIARY SWITCHBOARDS	1 pair	.1168	37	.064	50	160	India Rubber	L.C. + Armoured
	ENGINE ROOM	1 "	.00101	4	.086	20	80	"	"
	BOILER ROOM	✓							
4228/2	MAIN GENERATOR No. 2	1 pair	1.10	137	.103	630	50	Rubber	L.C. + Armoured
4228/1	" " " No. 3	1 pair	1.10	137	.103	630	200	Rubber	L.C. + Armoured
	WIRELESS	1 pair	.1168	4	.064	20	400	India Rubber	L.C. + Armoured
	SEARCHLIGHT	" "	.1000	19	.083	60	60	"	"
	MASTHEAD LIGHT	" "	.00299	3	.036	.2	300	"	Lead + Armoured
	SIDE LIGHTS	" "	.00299	3	.036	.2	100	"	"
	COMPASS LIGHTS	" "	.0094	3	.029	.4	60	"	"
	POOP LIGHTS	" "	.0224	4	.064	12	300	"	L.C. + Armoured
	CARGO LIGHTS	" "	.0224	4	.064	15	150	"	"
	ARC LAMPS	✓							
	HEATERS	2 pairs	.1168	37	.064	40	160	"	"

  

MOTOR CONDUCTORS.									
Ref. No.	DESCRIPTION.	No. of Motors.	Effective Area of each Conductor. Sq. Ins.	COMPOSITION OF STRAND.		Total Maximum Current. Amps.	Approximate Length. (Lead and Return.) Feet.	Insulated with	HOW PROTECTED.
				No.	Diameter.				
37448	BALLAST PUMP	1	.1964	37	.083	33	80	India Rubber	L.C. + Armoured
37450	MAIN BILGE LINE PUMPS	2	.1168	4	.064	39	40	"	"
37452	GENERAL SERVICE PUMP	1	.1168	7	.064	39	75	"	"
37457	EMERGENCY BILGE PUMP	✓							
37551	SANITARY PUMP	1	.1168	7	.064	39	45	"	"
37551	CIRC. SEA WATER PUMPS	2	.1009	19	.083	106	90	"	"
37551	CIRC. FRESH WATER PUMPS	2	.1168	7	.064	39	120	"	"
34189	AIR COMPRESSOR	1	1.14	215	.103	975	210	"	"
2169	FRESH WATER PUMP	1	.0029	3	.036	11	60	"	"
34817	ENGINE TURNING GEAR	2	.022	7	.064	48	170	"	"
34670	ENGINE REVERSING GEAR	✓							
38352	LUBRICATING OIL PUMPS	2	.022	7	.064	44	130	"	"
37980	OIL FUEL TRANSFER PUMP	1	.022	7	.064	12.4	70	"	"
39831	WINDLASS	60	.4	237	.083	250	500	"	"
6351	WINCHES, FORWARD	69	.35	1168	.064	137	400	"	"
	WINCHES, AFT	80	.35	1168	.064	141	400	"	"
74531	STEERING GEAR	1	.1009	19	.083	70	520	"	"
51435	WORKSHOP MOTOR	1	.022	7	.064	21	60	"	"
35145	VENTILATING FANS	1	.022	7	.064	25	800	"	"
	Steering Winch	35	.1168	37	.064	141	600	"	"
923544V	Oil pumps	1	.022	7	.064	39	75	"	"

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.

*H.C. Purves For James Scott Ltd* Electrical Engineers. Date *29-9-22*

**COMPASSES.**

Distance between electric generators or motors and standard compass *190 ft.*  
 Distance between electric generators or motors and steering compass *190 ft.*  
 The nearest cables to the compasses are as follows:—  
 A cable carrying *5* Amperes *16* feet from standard compass *18* feet from steering compass.  
 A cable carrying *2* Amperes *in* feet from standard compass *in* feet from steering compass.  
 A cable carrying \_\_\_\_\_ Amperes \_\_\_\_\_ 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 *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.

*Robert Duncan Roy Ltd* Builder's Signature. Date *2/10/22*  
*per A. Kelly*

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 in every way has been found good & sound & in my opinion the installation is eligible for the highest Class*

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

Total Capacity of Generators *411* Kilowatts

The amount of Fee ... £ *41-15/6* : *17-10-22* When applied for,  
 Travelling Expenses (if any): £ : - : *See debit book.* When received,

*J. Rankin*  
 Surveyor to Lloyd's Register of Shipping.  
*23/10/22*

Committee's Minute *GLASGOW 17 OCT 1922*

Assigned *Elec. Light.*

*JK*  
*16/10/22*

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

