

Rpt. 13.

No. 12 335

## REPORT ON ELECTRICAL EQUIPMENT.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

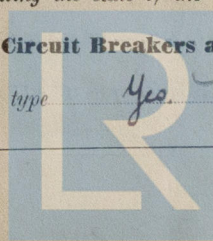
MAR 25 1939

Received at London Office

Date of writing Report 19 When handed in at Local Office 24. 3. 1939 Port of Belfast  
 No. in Survey held at Belfast Date, First Survey 20 July 1938 Last Survey March 15 1939  
 Reg. Book. on the Single Screw Motor Vessel Rowellan Castle  
 Built at Belfast By whom built Harland & Wolff Ltd Yard No. 1013 When built 1938-9  
 Owners Union Castle Mail Steamship Co Port belonging to London  
 Electric Light Installation fitted by Harland & Wolff Ltd Contract No. 1013 When fitted 1938-9  
 Is the Vessel fitted for carrying Petroleum in bulk No.

Gross  
Tons  
Net

System of Distribution Two 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 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 Have machines over 100 kw. been inspected by the Surveyors during manufacture and testing Yes  
 Have certificates for generators under 100 kw. been supplied and approved  
 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 In Motor Room (1 Port and 2 Starboard) 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 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 at Aft End 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 is the non-hygroscopic insulating material of an approved type 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 For each Generator one 1500 D.P. circuit Breaker 1/2 Reverse Current Trips Time Lag Interlocked with 800amp Equalizer Switch Outgoing circuits have D.P. circuit Breaker or S.P. Knife Switch & D.P. Zed Type Fuses.  
 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 Yes Instruments on main switchboard 3 ammeters 2  
 voltmeters Arranged 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 Indicating Lamp on each Pole with D.P. Switch & Fuses Switches, Circuit Breakers and Fusible Cut-outs, do these comply with the requirements of the Rules Yes are the fusible cutouts of an approved type Yes have the reversed



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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~~ and 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 9.5 Volts Tunnel Escape Fan

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

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 —, or waterproof insulating tape — **Paper Insulated and Varnished Cambric Insulated Cables.**

**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 No if so, are they adequately protected Hard Rubber Waterproof Type cables clipped to Perforated Steel Plates or Sheet Metal when necessary.

**Support and Protection of Cables**, state how the cables are supported and protected clipped to Perforated Steel Plates or Sheet Metal when necessary.

If cables are run in wood casings, are the casings and caps secured by screws —, are the cap screws of brass —, are the cables run in separate grooves — 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 In specially constructed & insulated joint 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 All metal Portable Fittings Not Fitted to Framework of Ship are earthed with connectors Equivalent to Working conductors. 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 None

**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 —

are any fittings placed in spaces where inflammable or explosive dust or gases are liable to be present, if so, how are they protected Guarded Pendant Fitting in Paint Room how are the cables led Hard Rubber cable in conduit

where are the controlling switches situated Locally

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 — whether fixed or portable —, 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 axes of rotation fore and aft Horizontal Type - Yes. Vertical Type - No. 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 —

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

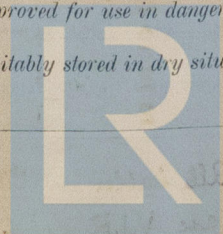
**Control Gear and Resistances**, are the generator field and motor speed regulators, starters and controllers constructed and fitted as per Rule Yes

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

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

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 —

**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



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POOP LIGHTS	1	002	3	029	18	7.8	1040	Rubber	H.R. to cable hanging 1300
CARGO LIGHTS	1	007	7	044	25	31	36	V.I.R. Rubber	L.C.B. to Rubber
St. Reboard 'A'	1	6	91	093	340	384	210	Do.	Do.

### MOTOR CONDUCTORS (CONTINUED)

DESCRIPTION	NO. OF MOTORS	CONDUCTORS		COMPOSITION OF STRAND		TOTAL MAXIMUM CURRENT. AMPS.		APPROXIMATE LENGTH LEAD & RETURN FEET	INSULATED WITH	HOW PROTECTED
		NO. PER POLE	TOTAL EFFECT AREA PER POLE SQ. INS.	NO.	DIA.	IN CIRCUIT	RULE			
Co. O <sub>2</sub> Compressor	3	1	.85	127	.093	510	512 ✓	180	Rubber	Hard Rubber.
Brine Pump 12 B.H.P.	3	1	.03	19	.044	48	53 ✓	190	Do.	Do.
Do. 8½ "	2	1	.0225	7	.064	34	46 ✓	190	Do.	Do.
Do. 4 "	1	1	.0045	7	.029	16	18.2 ✓	190	Do.	Do.
Aux. S.W. Pump	2	1	.01	7	.044	30	31 ✓	90	Do.	Do.
Lub. Oil Purifier	2	1	.003	3	.036	6	12 ✓	160	Do.	Do.
Oil Vapour Fan	1	1	.007	7	.036	18	24 ✓	250	Do.	Do.
Boiler Blower	1	1	.003	3	.036	4	12 ✓	204	Do.	Do.
Purified Oil Pump	1	1	.0045	7	.029	10	18.2 ✓	150	Do.	Do.
Caloric Heaters	4	1	.002	3	.029	3	7.8 ✓	180	Do.	Do.
Galley Blowers	2	1	.003	3	.036	5	12 ✓	40	Do.	Do.
Lathe	1	1	.003	3	.036	6	12 ✓	90	Do.	Do.
Drilling Machine	1	1	.003	3	.036	8	12 ✓	108	Do.	Do.
Grinding Machine	1	1	.003	3	.036	8	12 ✓	48	Do.	Do.
Domestic F.W. Pump	1	1	.002	3	.029	3	7.8 ✓	114	Do.	Do.
Fuel Oil Purifiers	2	1	.003	3	.036	6	12 ✓	180	Do.	Do.
Ventilating Fan Tunnel	1	1	.005	7	.036	6	12 ✓	265	Do.	Do.
WORKSHOP MOTOR	4	1	.003	3	.036	6	12 ✓	265	Do.	Do.
VENTILATING FANS Holer Room	4	1	.003	3	.036	6	12 ✓	265	Do.	Do.
Refining Boiler Fan 10½ H.P.	6	1	.0225	7	.064	42	46 ✓	96	Do.	Do.
Refining Boiler Fan 10½ H.P.	4	1	.0145	4	.029	34	34 ✓	84	Do.	Do.

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# 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	300	220	1364	270	Diesel engine.		
AUXILIARY ...								
EMERGENCY ...								
ROTARY TRANSFORMER								

## GENERATOR, LIGHTING AND HEATING CONDUCTORS.

DESCRIPTION.	CONDUCTORS.		COMPOSITION OF STRAND.		TOTAL MAXIMUM CURRENT.		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 ...	3	2.25	91	.103	1354	1383 ✓	150	Rubber	Hard Rubber
EQUALISER CONNECTIONS ...	2	1.2	91	.093	—	768 ✓	75	Do	Do.
AUXILIARY GENERATOR ...									
EMERGENCY GENERATOR ...									
ROTARY MOTOR TRANSFORMER GENERATOR...									
ENGINE ROOM Lighting ...	1	.01	7	.044	13	31 ✓	60	Rubber	Hard Rubber.
BOILER ROOM... Do...	1	.01	7	.044	25	31 ✓	90	Do	Do
AUXILIARY SWITCHBOARDS ...									
Masterboard 'A' Power	1	0.5	61	.103	314	332 ✓	210	Do	Do
Do. 'B' Power.	1	1.0	127	.103	572	595 ✓	520	Do	Do.
Do. 'C' Do	1	0.75	91	.103	437	461 ✓	300	Do.	Do
Do. 'D' Refrig.	4	3.0	91	.103	1842	1844 ✓	90	Do	Do.
ACCOMMODATION ...									
Masterboard 'A' Leg.	1	.04	19	.052	50	64 ✓	210	Do	Do
Do. 'A' lighting	1	.15	37	.072	148	152 ✓	210	Do.	Do.
WIRELESS ...	1	.01	7	.044	17	31 ✓	360	Rubber V.I.R.	H.R. to cable changing Box LEADERS Do.
SEARCHLIGHT ...									
MASTHEAD LIGHT ...	1	.002	3	.029	.18	7.8 ✓	900	V.I.R.	Lead covered & Braided.
SIDE LIGHTS ...	1	.002	3	.029	.18	7.8 ✓	65	Do	Do.
COMPASS LIGHTS ...	1	.002	3	.029	.09	7.8 ✓	20	Do	Do.
POOP LIGHTS ...	1	.002	3	.029	.18	7.8 ✓	1040	Rubber V.I.R.	H.R. to cable changing Box LEADERS Do.
CARGO LIGHTS ...	1	.007	7	.036	19	24 ✓	36	Rubber Do.	Hard Rubber.
HEATERS Masterboard 'A'.	1	.6	91	.093	340	384 ✓	210	Do.	Do.

## MOTOR CONDUCTORS.

DESCRIPTION.	No. of Motors.	CONDUCTORS.		COMPOSITION OF STRAND.		TOTAL MAXIMUM CURRENT.		Approximate Length. (Lead and Return.) Feet.	Insulated with	HOW PROTECTED.
		No. Per Pole.	Total Nominal Area per Pole Sq. Ins.	No.	Diameter.	In Circuits.	Rule.			
BALLAST PUMP ...	1	1	.06	19	.064	77	83 ✓	234	Rubber.	Hard Rubber.
MAIN BILGE LINE PUMPS ...	1	1	.04	19	.052	59	64 ✓	174	Do.	Do.
GENERAL SERVICE PUMP ...										
EMERGENCY BILGE PUMP ...										
SANITARY PUMP ...	1	1	.04	19	.052	56	64 ✓	264	Do.	Do.
CIRC. SEA WATER PUMPS ...	2	1	.1	19	.083	118	118 ✓	264	Do.	Do.
CIRC. FRESH WATER PUMPS...	1	1	.1	19	.083	112	118 ✓	240	Do.	Do.
AIR COMPRESSOR ...	2	1	.2	37	.083	159	184 ✓	270	Do.	Do.
FRESH WATER PUMP ...	1	1	.01	7	.044	28	31 ✓	222	Do.	Do.
ENGINE TURNING GEAR...	1	1	.04	19	.052	60	64 ✓	60	Do.	Do.
ENGINE REVERSING GEAR ...	1	1	.007	7	.036	20	24 ✓	72	Do.	Do.
LUBRICATING OIL PUMPS ...	2	1	.6	91	.093	360	384 ✓	150	Do.	Do.
OIL FUEL TRANSFER PUMP...	2	1	.01	7	.044	30	31 ✓	180	Do.	Do.
WINDLASS ...	1	1	.4	61	.093	300	357 ✓	168	Do.	Do.
WINCHES, FORWARD ...	4	1	.075	19	.072	112	113 ✓	80.	Do.	Do.
Winches Midships	2	1	.075	19	.072	112	113 ✓	120	Do.	Do.
WINCHES, AFT ...	4	1	.075	19	.072	112	113 ✓	90	Do.	Do.
Working Winch	1	1	.2	37	.083	200	204 ✓	180.	Do.	Do.
STEERING GEAR—										
(a) MOTOR GENERATOR...	2	1	.25	37	.093	180	214 ✓	80	Do.	Do.
(b) MAIN MOTOR ...	2	1	.25	37	.093	190	214 ✓	480	Do.	Do.
Ventilating Fan Tunnel WORKSHOP MOTOR ...	1	1	.003	3	.036	8	12 ✓	400	Do.	Do.
VENTILATING FANS Motor Room.	4	1	.003	3	.036	6	12 ✓	266	Do.	Do.
Refrig. Motor Fan 10 1/2 HP	6	1	.0225	7	.064	42	46 ✓	96	Do.	Do.
Do. Do. 8 1/2 HP	7	1	.0145	7	.052	34	37 ✓	84	Do.	Do.
Do. Do. 5 HP	6	1	.007	7	.036	20	24 ✓	108	Do.	Do.
Do. Do. 2 1/2 HP	2	1	.003	3	.036	10	12 ✓	48	Do.	Do.
Refrig. Motor Water Pump	2	1	.04	19	.052	56	64 ✓	204	Do.	Do.
Ballast Refrig. Motor	2	1	.003	3	.036	8	12 ✓	30	Do.	Do.

Note:— All cables in vicinity of Navigating Bridge & Wireless Room are V.I.R. Lead covered & Braided.

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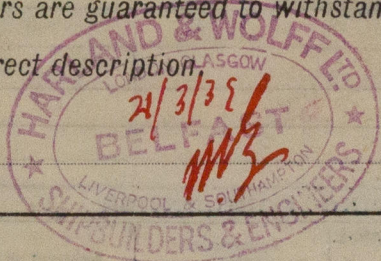
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The Electrical Equipment is installed in accordance with the approved plans.

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 MARCH 21ST '39

#### COMPASSES.

Minimum distance between electric generators or motors and standard compass 68 Feet from Nearest Motor

Minimum distance between electric generators or motors and steering compass 64 " " " "

The nearest cables to the compasses are as follows:—

A cable carrying 0.09 Ampères On feet from standard compass — feet from steering compass.

A cable carrying 0.09 Ampères — feet from standard compass On feet from steering compass.

A cable carrying 0.18 Ampères 10 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 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 MARCH 21ST '39.

Is this installation a duplicate of a previous case Yes If so, state name of vessel M.V. Richmond Castle "Bldg" 12312

General Remarks (State quality of workmanship, opinions as to class, &c. This installation has been fitted on)

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

Wid  
27/3/39

Total Capacity of Generators 900 Kilowatts.

The amount of Fee ... £ 67: 10: 24.3.1939

Bel. 227-0-0  
Dupl. 227-0-0  
Travelling Expenses (if any) £  
Glasgow 13-10-0

When received.

15.4.1939

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

TUE. 28 MAR 1939

Committee's Minute

Assigned

See FE machy  
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