

REPORT ON ELECTRICAL EQUIPMENT.

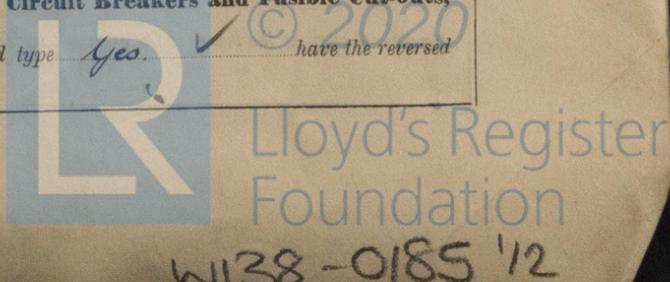
(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

-1 DEC 1936

Received at London Office

Date of writing Report 19 When handed in at Local Office 30 11 19 36 Port of Belfast
 No. in Survey held at Belfast Date, First Survey 1st Sept Last Survey 28-11-36 19
 Reg. Book. (Number of Visits.....) on the Single Screw, Motor Vessel Walmer Castle Tons { Gross 906 Net 350
 Built at Belfast By whom built Messrs. Harland & Wolff Ltd Yard No. 983 When built 1936.
 Owners Union Castle Mail Steamship Co. Ltd Port belonging to London
 Electric Light Installation fitted by Messrs. Harland & Wolff Ltd. Contract No. 983 When fitted 1936.
 Is the Vessel fitted for carrying Petroleum in bulk No.

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 Yes ✓ Have machines over 100 kw. been inspected by the Surveyors during manufacture and testing _____
 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 Motor Room, Port 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 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 Motor Room Port 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 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 300 Amp. D.P. Circuit Breaker with O/Load & Rev. Current Trips & Equaliser Switch for Generator No. 1, 2, & 3. 350 Amp. D.P. Double Throw Switch and D.P. Fuses for Auxiliary Generator. Outgoing Circuits each S.P. Switch & D.P. 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 4 ammeters 2 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 D.P. Double Throw Switch (Main or Auxy) with D.P. Fuses and Champs in each Pole to Earth. **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



current protection devices been tested under working conditions 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 Single are the cables insulated and protected as per Tables IV, V, X or XI 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 Volts ✓ **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 _____, or waterproof insulating tape _____ **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 in machinery spaces, galleys, laundries, bathrooms and lavatories lead covered or run in conduit H. R. Type ✓

Support and Protection of Cables, state how the cables are supported and protected Main Cable Run Tween Dk. 3/16" Solid Plate. With 1/8" Cover, Otherwise Perforated Plating. Cables: H. R. Type, lead covered in vicinity of W/S. Room, etc. 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 _____

Joints in Cables, state if any, and how made, insulated, and protected None Made ✓

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 Metal Portable Fittings Not Attached To Ship's Steelwork. Earthed With Connections Equivalent To Working Conductor ✓, are their connections made as per Rule _____

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 _____

Fittings, are all fittings on weather decks, in aloft-holds 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 _____

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 _____

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 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 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 _____, 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 _____ **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 fitted 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 type approved by the Home Office _____

Spare Gear, if the vessel is for open sea service have spares been supplied as per Rule Yes ✓

PARTICULARS OF GENERATING PLANT.

| DESCRIPTION OF GENERATOR. | No. of | RATED AT | | | | DRIVEN BY | WHERE DRIVEN BY AN INTERNAL COMBUSTION ENGINE. | |
|---------------------------|--------|------------|--------|----------|----------------|---------------|--|----------------------|
| | | Kilowatts. | Volts. | Amperes. | Revs. per Min. | | Fuel Used. | Flash Point of Fuel. |
| MAIN | 3 | 60 | 220 | 270.0 | 300 | Diesel Engine | | |
| AUXILIARY | 1 | 10 | 220 | 45.5 | 1000 | " | | |
| EMERGENCY | | | | 885.5 | | | | |
| ROTARY TRANSFORMER | | | | total | | | | |

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. | In Circuit. | Rele. | | | |
| MAIN GENERATOR | 1 | .4 | 61 | .093 | 270 | 288 | 75 | Rubber | Hard Rubber. |
| EQUALISER CONNECTIONS | - | .15 | 37 | .072 | - | 152 | 37 | " | " |
| AUXILIARY GENERATOR | 1 | .03 | 19 | .044 | 47.5 | 53 | 60 | " | " |
| EMERGENCY GENERATOR | | | | | | | | | |
| ROTARY TRANSFORMER | | | | | | | | | |
| Facing Room | | | | | | | | | |
| Bottom Room | | | | | | | | | |
| Accommodation | | | | | | | | | |
| New Wireless & Heating | 1 | .06 | 19 | .064 | 70 | 83 | 150 | " | " |
| Midship Accom. lighting & heat | 1 | .15 | 37 | .072 | 140 | 152 | 300 | " | " |
| Aft Accommodation | 1 | .04 | 19 | .052 | 50 | 64 | 300 | " | " |
| Motor Room Lighting | 1 | .0045 | 7 | .029 | 15 | 18.2 | 35 | " | " |
| Motor Room Heating | 1 | .04 | 19 | .052 | 55 | 64 | 60 | " | " |
| Accommodation | | | | | | | | | |
| Sounding Machine | 1 | .003 | 3 | .036 | 7.5 | 12 | 70 | " | " |
| Refug. Machine | 1 | .002 | 3 | .029 | 4.8 | 7.8 | 66 | " | " |
| Stange lighting | 1 | .01 | 7 | .044 | 13.5 | 31.0 | 500 | " | " |
| Stern light | 1 | .002 | 3 | .029 | 27 | 7.8 | 420 | " | " |
| Windlass | | | | | | | | | |
| Searchlight | | | | | | | | | |
| MASTHEAD LIGHT | 1 | .002 | 3 | .029 | 27 | 7.8 | 300 | " | " |
| SIDE LIGHTS | 1 | .002 | 3 | .029 | 27 | 7.8 | 90 | " | " |
| COMPASS LIGHTS | 1 | .002 | 3 | .029 | 11 | 7.8 | 75 | " | " |
| DECK LIGHTS | | | | | | | | | |
| GANG LIGHTS | | | | | | | | | |
| ARE LAMPS | | | | | | | | | |
| HEATING | | | | | | | | | |

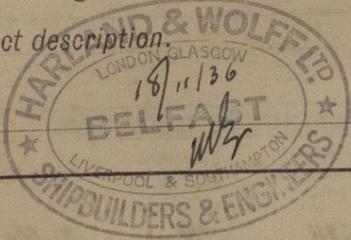
MOTOR CONDUCTORS.

| DESCRIPTION. | No. of Motor. | 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. | In Circuit. | Rele. | | | |
| Diesel Pump | | | | | | | | | | |
| Main Deck Line Pumps | | | | | | | | | | |
| GENERAL SERVICE PUMP | 2 | 1 | .03 | 19 | .044 | 47.5 | 53 | 120 | Rubber | Hard Rubber. |
| EMERGENCY BILGE PUMP | | | | | | | | | | |
| SANITARY PUMP | | | | | | | | | | |
| CIRC. SEA WATER PUMPS | 2 | 1 | .0225 | 7 | .064 | 43.5 | 46 | 180 | " | " |
| CIRC. FRESH WATER PUMPS | 1 | 1 | .007 | 7 | .036 | 22.5 | 24 | 180 | " | " |
| AIR COMPRESSOR | | | | | | | | | | |
| FRESH WATER PUMP | 1 | 1 | .0045 | 7 | .029 | 13 | 18.2 | 90 | " | " |
| ENGINE TURNING GEAR | 1 | 1 | .0145 | 7 | .052 | 32 | 37 | 180 | " | " |
| ENGINE REVERSING GEAR | | | | | | | | | | |
| LUBRICATING OIL PUMPS | 2 | 1 | .075 | 19 | .072 | 89 | 97 | 168 | " | " |
| OIL FUEL TRANSFER PUMP | 2 | 1 | .0045 | 7 | .029 | 14.5 | 18.2 | 90 | " | " |
| WINDLASS | 1 | 1 | .06 | 19 | .064 | 80 | 92 | 450 | " | " |
| WINCHES, FORWARD | 4 | 1 | .10 | 19 | .083 | 117 | 142 | 275 | " | " |
| WINCHES, AFT | 2 | 1 | .10 | 19 | .083 | 117 | 142 | 210 | " | " |
| STEERING GEAR— | | | | | | | | | | |
| (a) MOTOR GENERATOR | 1 | 1 | .06 | 19 | .064 | 74 | 83 | 60 | " | " |
| (b) MAIN MOTOR | 1 | 1 | .06 | 19 | .064 | 66 | 83 | 330 | " | " |
| WINDLASS MOTOR | | | | | | | | | | |
| VENTILATING FANS | 4 | 1 | .003 | 3 | .036 | 4.4 | 12 | 270 | " | " |
| Lub. Oil Purifiers | 2 | 1 | .002 | 3 | .029 | 4.7 | 7.8 | 90 | " | " |
| F.O. Purifiers | 2 | 1 | .002 | 3 | .029 | 4.7 | 7.8 | 90 | " | " |
| Purified F.O. Pumps | 1 | 1 | .002 | 3 | .029 | 4.6 | 7.8 | 60 | " | " |
| Lub. Oil Heaters 16 K.W. | 1 | 1 | .06 | 19 | .064 | 73 | 83 | 180 | " | " |
| Lub. Oil Heaters 12 K.W. | 1 | 1 | .04 | 19 | .052 | 55 | 64 | 180 | " | " |

All Conductors are of annealed copper conforming to British Standard Specification No. 7 (or International Electro-technical Commission Publication No. 28).

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

The foregoing is a correct description.



Electrical Engineers.

Date Nov. 18th. 1936.

COMPASSES.

Distance between electric generators or motors and standard compass 50 From Nearest Motor.

Distance between electric generators or motors and steering compass 35 " " "

The nearest cables to the compasses are as follows:—

A cable carrying 0.11 Amperes On ~~10~~ standard compass — feet from steering compass.

A cable carrying 0.11 Amperes — feet from standard compass On ~~10~~ steering compass.

A cable carrying 70 Amperes 40 feet from standard compass 25 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.



Builder's Signature.

Date Nov. 18th. 1936.

Is this installation a duplicate of a previous case — If so, state name of vessel —

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

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

Noted
Yhr
2.12.36

Total Capacity of Generators 190 Kilowatts.

| | | | |
|--------------------------------|----------------|-------------------|-------------------|
| The amount of Fee ... | £ <u>41 10</u> | When applied for, | <u>30.11.1936</u> |
| <u>Belfast</u> { | <u>20 15</u> | When received, | <u>11.12.36</u> |
| <u>Liph</u> { | <u>20 15</u> | | |
| Travelling Expenses (if any) £ | : | | |

R. C. Clayton, Charles J. Huntley
Surveyors to Lloyd's Register of Shipping.

Committee's Minute FRI. 4 DEC 1936

Assigned See Bel J.E. 11852

2m.5.34.—Transfer. The Surveyors are requested not to write on or below the space for Committee's Minute.



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