

REPORT ON ELECTRICAL EQUIPMENT.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

26 FEB 1937

Received at London Office

Date of writing Report 19 When handed in at Local Office 25. 2. 1937 Port of Belfast
 No. in Survey held at Date, First Survey 20 Nov. 1936 Last Survey 18 Feb. 1937
 Reg. Book. on the H. D. Ernebank (Number of Visits 18)
 Built at Belfast By whom built Harland & Wolff Yard No. 984 When built 1934
 Owners Messrs. Andrew Usher Port belonging to
 Electric Light Installation fitted by Harland & Wolff Contract No. 984 When fitted 1934
 Is the Vessel fitted for carrying Petroleum in bulk No.

System of Distribution Two Wire Direct Current System
 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 No.
 are they over compounded 5 per cent. No, if not compound wound state distance between each generator 8'-6"
 Where more than one generator is fitted are they arranged to run in parallel No, 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 Main Motor Room on 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
 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 Main Motor Room 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 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 Yes, 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
200 amp. Double Pole Quick Break Knife Switch & 200 amp. Double Pole 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
 Instruments on main switchboard 3 ammeters 1
 voltmeters synchronising device for paralleling purposes
 For compound machines is the ammeter connected on the opposite pole to equaliser connection
 Earth Testing, state what means are provided at the main switchboard for indicating the state of the insulation of the system
Earth Lamps connected to Bus Bars by D.P. Switch and switches, Circuit Breakers and Fusible Cut-outs, Fuses.
 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 — **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 — are the cables insulated and protected as per Tables IV, 4, X or 5 of the Rules Yes

If the cables are insulated otherwise than as per Rule, are they of an approved type — **Fall of Pressure**, state maximum between bus bars and any point of the installation under maximum load 64 volts

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

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.**

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 Lead

Support and Protection of Cables, state how the cables are supported and protected blipped to Perforated Steel Plating

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 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 are earthed with conductor equivalent to working conductor

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 Fitted

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 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

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 —, are air heaters constructed and fitted as per Rule —

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

Arc 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 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 — **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 type approved by the Home Office —

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

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 ...	2	25	220	115	550	Steam Engine	—	—
AUXILIARY ...	—	—	—	—	—	—	—	—
EMERGENCY ...	—	—	—	—	—	—	—	—
ROTARY TRANSFORMER	—	—	—	—	—	—	—	—

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.	Circuits.	Rate.			
MAIN GENERATOR ...	1	0.1	19	.083"	115	118	60'	Rubber	Hard Rubber
EQUALISER CONNECTIONS ...	—	—	—	—	—	—	—	—	—
AUXILIARY GENERATOR ...	—	—	—	—	—	—	—	—	—
EMERGENCY GENERATOR ...	—	—	—	—	—	—	—	—	—
ROTARY TRANSFORMER MOTOR GENERATOR ...	—	—	—	—	—	—	—	—	—
ENGINE ROOM ...	1	0.0045	7	.029"	16	18.2	80	Rubber	Hard Rubber
BOILER ROOM ...	—	—	—	—	—	—	—	—	—
AUXILIARY SWITCHBOARDS ...	—	—	—	—	—	—	—	—	—
ACCOMMODATION <u>Fore</u> ...	1	0.01	4	.044"	24	31	250'	Rubber	Hard Rubber
<u>Aft</u> ...	1	0.007	4	.036"	11	24	500'	"	"
<u>Navigation</u> ...	1	0.0045	4	.029"	10	18.2	240'	"	"
WIRELESS ...	1	0.01	4	.044"	24	31	240'	"	"
SEARCHLIGHT ...	—	—	—	—	—	—	—	—	—
MASTHEAD LIGHT ...	1	0.002	3	.029"	0.18	7.8	240'	"	"
SIDE LIGHTS ...	1	0.002	3	.029"	0.18	7.8	60'	"	"
COMPASS LIGHTS ...	1	0.002	3	.029"	0.11	7.8	40'	"	"
POOP LIGHTS ...	—	—	—	—	—	—	—	—	—
CARGO LIGHTS ...	1	0.0225	4	.064"	36	46	450'	"	"
ARC LAMPS ...	—	—	—	—	—	—	—	—	—
HEATERS ...	—	—	—	—	—	—	—	—	—

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 Circuit.	Rate.			
BALLAST PUMP ...	—	—	—	—	—	—	—	—	—	—
MAIN BILGE LINE PUMPS ...	—	—	—	—	—	—	—	—	—	—
GENERAL SERVICE PUMP ...	—	—	—	—	—	—	—	—	—	—
EMERGENCY BILGE PUMP ...	—	—	—	—	—	—	—	—	—	—
SANITARY PUMP ...	—	—	—	—	—	—	—	—	—	—
CIRC. SEA WATER PUMPS ...	—	—	—	—	—	—	—	—	—	—
CIRC. FRESH WATER PUMPS ...	—	—	—	—	—	—	—	—	—	—
AIR COMPRESSOR ...	—	—	—	—	—	—	—	—	—	—
FRESH WATER PUMP ...	—	—	—	—	—	—	—	—	—	—
ENGINE TURNING GEAR ...	—	—	—	—	—	—	—	—	—	—
ENGINE REVERSING GEAR ...	—	—	—	—	—	—	—	—	—	—
LUBRICATING OIL PUMPS ...	—	—	—	—	—	—	—	—	—	—
OIL FUEL TRANSFER PUMP ...	—	—	—	—	—	—	—	—	—	—
WINDLASS ...	—	—	—	—	—	—	—	—	—	—
WINCHES, FORWARD ...	—	—	—	—	—	—	—	—	—	—
WINCHES, AFT ...	—	—	—	—	—	—	—	—	—	—
STEERING GEAR—	—	—	—	—	—	—	—	—	—	—
(a) MOTOR GENERATOR ...	—	—	—	—	—	—	—	—	—	—
(b) MAIN MOTOR ...	—	—	—	—	—	—	—	—	—	—
WORKSHOP MOTORS ...	2	1	0.003	3	.036"	8	12	30'	Rubber	Hard Rubber
VENTILATING FANS ...	4	1	0.003	3	.036"	6	12	80'	"	"
<u>Lifting gear</u> ...	1	1	0.004	4	.036"	20	24	180'	"	"
<u>Boiler Fan</u> ...	1	1	0.002	3	.029"	4	7.8	150'	"	"
<u>Oil Purifier</u> ...	3	1	0.0045	4	.029"	12	18.2	100'	"	"
<u>Yellow Blowers</u> ...	2	1	0.002	3	.029"	2	7.8	240'	"	"
<u>Rising Machine</u> ...	1	1	0.0045	4	.029"	10	18.2	300'	"	"

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 FEBRUARY 18TH '37

COMPASSES.

Distance between electric generators or motors and standard compass 40'-0"

Distance between electric generators or motors and steering compass 65'-0"

The nearest cables to the compasses are as follows:—

A cable carrying 10 Ampères 8 feet from standard compass 6 feet from steering compass.

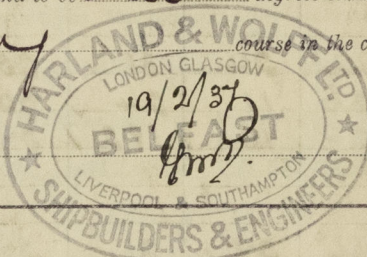
A cable carrying 27 Ampères 12 feet from standard compass 12 feet from steering compass.

A cable carrying — Ampères — 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.



Builder's Signature.

Date FEB. 18TH. 1937

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 and has been tested under full working conditions and found satisfactory.

The materials and workmanship have been found to be good and sound.

Noted

Y.H.M.

1.3.37

Total Capacity of Generators 50. Kilowatts.

The amount of Fee ... £ 27 : 10 : 25.2.19.37.
Belfast a/c £13-15-0
Liverpool a/c £13-15-0
Travelling Expenses (if any) £ : : 18.3.37 19/3

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

Committee's Minute

TUE 2 MAR 1937

Assigned See other F. E. report

2m534.— Transfer.
The Surveyors are requested not to write on or below the space for Committee's Minute.



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