

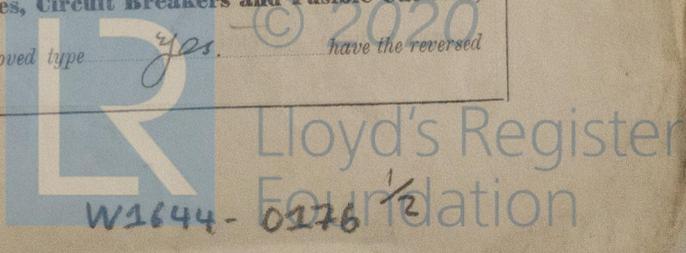
REPORT ON ELECTRICAL EQUIPMENT.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

Received at London Office OCT 27 1937

Date of writing Report 20th Oct 1937 When handed in at Local Office 21st Oct 1937 Port of Dundee
 No. in Survey held at Dundee Date, First Survey 4th Aug Last Survey 18th Oct 1937
 Reg. Book. 21135 on the s/s "BECKENHAM" (Number of Visits 1.2)
 Tons { Gross 4636
 Net 2400
 Built at Dundee By whom built Baldon S.B. & E. Cold Yard No. 367 When built 1934
 Owners Britain S.S. Co. Ltd. Port belonging to London
 Electric Light Installation fitted by Jelford Grier & Mackay & Co. Ltd. Contract No. ✓ When fitted 1934
 Is the Vessel fitted for carrying Petroleum in bulk No.

System of Distribution Two wire ✓
Pressure of supply for Lighting 110 volts, **Heating** ✓ volts, **Power** 110 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 ✓, 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 Starboard side - Main Engine Room ✓, 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 No woodwork 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 bulkhead in proximity to generator ✓
 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 No woodwork ✓, 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 Sindanyp ✓, 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 D.P. Switch + fuses for Generator, D.P. Switch + fuses for each outgoing circuit. ✓
 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 one ammeters one 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 Earth lamps ✓. **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 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 yes ✓, or waterproof insulating tape yes ✓ **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 Lead covered ✓

Support and Protection of Cables, state how the cables are supported and protected To Bulkheads decks etc with metal clips secured by screws ✓

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 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 none ✓

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 Metallic sheathing of cables bonded or earthed ✓, 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 ✓

Fittings, are all fittings on weather decks, in storerooms 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 none ✓

are any fittings placed in spaces where inflammable or explosive dust or gases are liable to be present, if so, how are they protected none ✓, how are the cables led yes ✓

where are the controlling switches situated yes ✓

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 none ✓, whether fixed or portable yes ✓, are their fittings as per Rule yes ✓

Arc Lamps, other than searchlight lamps, No. of none ✓, 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 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 yes ✓, if not of this type, state distance of the combustible material horizontally or vertically above the motors No woodwork ✓

have machines of over 100 BHP been inspected by the Surveyors during manufacture and testing yes ✓ **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 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 ✓ are all fuses of the filled cartridge type yes ✓ are they of an approved type yes ✓

If portable lamps for use in dangerous spaces are supplied, are they of a self-contained, battery-fed type approved by the Home Office yes ✓

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.	Ampères.	Revs. per Min.		Fuel Used.	Flash Point of Fuel.
MAIN ...	one	15	110	136	750	Steam Engine	-	✓
AUXILIARY ...								
EMERGENCY ...								
ROTARY TRANSFORMER								

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.	Circuit.	Rule.			
MAIN GENERATOR ...	1	.150	34	.042	136	152	42 ft.	V.I.R.	L.C. in Steel tube
EQUALISER CONNECTIONS ...									
AUXILIARY GENERATOR ...									
EMERGENCY GENERATOR ...									
ROTARY TRANSFORMER MOTOR GENERATOR ...									
ENGINE ROOM ...	1	.0100	4	.044	20	31	30 ft.	V.I.R.	L.C. A+B.
BOILER ROOM ...									
AUXILIARY SWITCHBOARDS ...									
Cargo Section box	1	.0400	19	.052	55	64	30 ft.	V.I.R.	L.C. A+B.
Afters Cargo box	1	.0100	4	.044	22	31	240 ft.	"	"
Midships "	1	.0045	4	.029	11	18	90 "	"	"
Fore "	1	.0225	4	.064	22	46	360 "	"	"
ACCOMMODATION ...									
Saloon	1	.0225	4	.064	32	46	300 ft.	V.I.R.	L.C. A+B.
Midships	1	.0045	4	.029	12	18	120 "	"	"
Aft	1	.0100	4	.044	15	31	360 "	"	"
Holds	1	.0045	4	.029	13	18	120 "	"	"
WIRELESS ...	1	.0100	4	.044	10	31	330 "	"	"
Searchlight Navigation	1	.0100	4	.044	10	31	360 "	"	"
MASTHEAD LIGHT ...	1	.002	3	.029	26	7.8	300 "	"	"
SIDE LIGHTS ...	1	.002	3	.029	36	7.8	80 "	"	"
COMPASS LIGHTS ...	1	.002	3	.029	36	7.8	30 "	"	"
POOP LIGHTS ...									
CARGO LIGHTS ...									
ARC LAMPS ...									
HEATERS ...									

MOTOR CONDUCTORS.

DESCRIPTION.	No. of Motors.	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.	Rule.			
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 MOTOR ...	1	1	.0225	4	.064	42	46	120 ft.	V.I.R.	L.C. A+B.
VENTILATING FANS ...										
Refrig. Section Box	2	1	.0100	4	.044	25	31	120 "	"	"
" Motor No 1	1	1	.0045	4	.029	17	18	30 "	"	"
" " No 2	1	1	.0030	3	.036	8	12	30 "	"	"

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.

Telford Grier Mackay & Co. Ltd. Electrical Engineers. Date *21/10/37*

COMPASSES.

Distance between electric generators or motors and standard compass *112 ft.*

Distance between electric generators or motors and steering compass *112 ft.*

The nearest cables to the compasses are as follows:—

A cable carrying *10* Amperes *10* feet from standard compass *4* feet from steering compass.

A cable carrying *36* Amperes *one* feet from standard compass *one* 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 *all* course in the case of the standard compass, and *nil* degrees on *all* course in the case of the steering compass.

FOR AND ON BEHALF OF
THE CALEDON SHIPBUILDING & ENGINEERING CO. LTD.

J. W. Hunter

Builder's Signature.

Date *22/10/1937*

Is this installation a duplicate of a previous case *yes*. If so, state name of vessel *1/2 "Blackheath"*

General Remarks (State quality of workmanship, opinions as to class, &c.)

This Installation has been efficiently fitted on board; the wiring has been carried out in accordance with the approved plans, the materials & workmanship being sound & good.

On completion the installation was tried under full load & working conditions, & it was found satisfactory in all respects.

W. L. J.
29/10/37

Total Capacity of Generators *15* Kilowatts.

The amount of Fee ... £ *15 : 0 : 0* When applied for, *22/10/1937*

Traveling Expenses (if any) £ : : When received, *16/11 1937*

John Houston
Surveyor to Lloyd's Register of Shipping.

Committee's Minute **GLASGOW 26 OCT 1937**

TUE 2 NOV 1937

Assigned **TRANSMIT TO LONDON**



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20,584.—Transfer.
The Signatories are requested not to write on or below the space for Committee's Minute.