

# REPORT ON ELECTRIC FITTINGS.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

Received at London Office... 24 FEB 1926

Date of writing Report 29. 12. 1925 When handed in at Local Office 22. 2. 26 19 Port of GLASSGOW.

No. in Survey held at GLASSGOW. Date, First Survey 21<sup>st</sup> Dec Last Survey 31<sup>st</sup> Dec 1925  
Reg. Book. 39688 on the M.V. "KING MALCOLM" (Number of Visits.....)

Built at GLASSGOW. By whom built MESSRS D & W. HENDERSON Yard No. 692 When built 1925  
Tons { Gross 5064  
Net

Owners THE BRITISH MOTORSHIP CO LTD Port belonging to LONDON.

Electric Light Installation fitted by MESSRS HARLAND & WOLFF LTD Contract No. 692. When fitted 1925.  
(GOVAN)

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 overload 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

Are all terminals accessible and clearly marked yes, are they so spaced or shielded that they cannot be accidentally earthed, or short circuited yes

Position of Generators Port side of engine room. Are the lubricating arrangements of the generators as per Rule yes

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 axis 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 Port side of engine 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, incombustible non-absorbent materials yes, is all insulation of high dielectric strength and of permanently high insulation resistance yes

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 yes

frame effectively earthed yes. Are the following fittings as per Rule, viz.:— spacing or shielding of live parts

yes, accessibility of all parts yes, absence of fuses on back of board yes, proportion of omnibus bars yes

individual fuses to voltmeter, pilot or earth lamp yes, connections of switches yes

Main Switchgear, description of switchgear for each generator and each outgoing circuit, and arrangement of equalizer switches. 3 Double Pole

Circuit Breakers for Generators with interlocked D.P. switch for paralleling. D.P. switches and two D.P. fuses for each outgoing circuit.

Instruments on main switchboard 3 ammeters 2 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 Two lamps and two linked D.P. switches across mains, mid point of lamps earthed.

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

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



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**Insulation of Cables**, state type of cables, single or twin *both* 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 *5*

**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

**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 *none 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 *Lead covered cables in accommodation clipped to beams and wood bulkheads, L.C. cables in engine room run on sheet iron perforated plating and bulkheads, L.C. and armoured on engine brackets, main cables L.C. and armoured in bulkheads, sheet iron hanging along hatch trimmings and deck.*  
If cables are run in wood casings, are the casings and caps secured by screws *-*, 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 VI *yes*

**Refrigerated Chambers**, if lights are fitted, are the cables and fittings in accordance with the special requirements

**Joints in Cables**, state if any, and how made, insulated, and protected *In a special joint box.*

**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*

**Earthing Connections**, state what earthing connections are fitted and their respective sectional areas *-*

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 *-*

**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 *in Chartroom*

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 *-*

where are the controlling switches situated *-*

**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 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 *-*

if not of this type, state distance of the combustible material horizontally or vertically above the motors *-* and *-*

**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 *-*

**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 *-*

If portable lamps for use in dangerous spaces are supplied, are they of a type approved by the Home Office *-*

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	65 ea.	220	295 each	300	Diesel Engines	British Insect. Closed 146° F. Open 190° F.	
AUXILIARY								
EMERGENCY								
ROTARY TRANSFORMER								

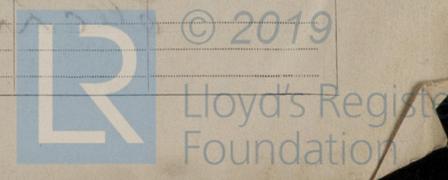
LIGHTING AND HEATING CONDUCTORS.

Ref. No.	DESCRIPTION.	No. of Conductors.	Effective Area of each Conductor. Sq. Ins.	COMPOSITION OF STRAND.		Total Maximum Current. Amperes.	Approximate Length. (Lead and Return.) Feet.	Insulated with	HOW PROTECTED.
				No.	Diameter.				
	MAIN GENERATORS	1	1/4 sq. ins.	5	61	103	295 each	138 strands rubber	Lead lined.
	AUXILIARY GENERATOR	-	-	-	-	-	-	-	-
	EMERGENCY GENERATOR	-	-	-	-	-	-	-	-
	ROTARY TRANSFORMER	-	-	-	-	-	-	-	-
	AUXILIARY SWITCHBOARDS	-	-	-	-	-	-	-	-
	ENGINE ROOM	1	1/4 sq. ins.	1004	7	103	12	45	- do. - do.
	BOILER ROOM	-	-	-	-	-	-	-	-
	WIRELESS	1	1/4 sq. ins.	1004	7	103	-	466	do lead lined & Arm.
	SEARCHLIGHT	-	-	-	-	-	-	356	- do. - do.
	MASTHEAD LIGHT	1	1/4 sq. ins.	1004	3	103	45	126	- do. - do.
	SIDE LIGHTS	2	"	"	3	103	45	126	- do. - do.
	COMPASS LIGHTS	2	"	"	3	103	45	126	- do. - do.
	POOP LIGHTS (2)	2	"	"	3	103	45	126	- do. - do.
	CARGO LIGHTS (4)	4	"	"	3	103	45	126	- do. - do.
	ARC LAMPS	-	-	-	-	-	-	-	-
	HEATERS	1	1/4 sq. ins.	1004	3	103	45	126	- do. - do.

MOTOR CONDUCTORS.

Ref. No.	DESCRIPTION.	No. of Motors.	Effective Area of each Conductor. Sq. Ins.	COMPOSITION OF STRAND.		Total Maximum Current. Amperes.	Approximate Length. (Lead and Return.) Feet.	Insulated with	HOW PROTECTED.
				No.	Diameter.				
	BALLAST PUMP	1	.06	19	.064	69	56	rubber	Lead lined
	MAIN BILGE LINE PUMPS	1	.01	4	.044	31	64	- do. - do.	- do. - do.
	GENERAL SERVICE PUMP	-	-	-	-	-	-	-	-
	EMERGENCY BILGE PUMP	-	-	-	-	-	-	-	-
	SANITARY PUMP	1	.04	19	.082	60	56	- do. - do.	- do. - do.
	CIRC. SEA WATER PUMPS	1	.04	19	.082	60	56	- do. - do.	- do. - do.
	CIRC. FRESH WATER PUMPS	2	.007	4	.036	15	118	- do. - do.	- do. - do.
	AIR COMPRESSOR	1	.60	91	.092	340	182	- do. - do.	- do. - do.
	FRESH WATER PUMP	-	-	-	-	-	-	-	-
	ENGINE TURNING GEAR	1	.0225	4	.064	40	60	- do. - do.	- do. - do.
	ENGINE REVERSING GEAR	-	-	-	-	-	-	-	-
	LUBRICATING OIL PUMPS	2	.0145	4	.052	35	42	- do. - do.	- do. - do.
	OIL FUEL TRANSFER PUMP	1	.007	4	.036	14	76	- do. - do.	- do. - do.
	WINDLASS	1	.20	37	.082	196	146	- do. - do.	Lead lined & Arm.
	WINCHES, FORWARD	2	.30	37	.103	282	314	- do. - do.	- do. - do.
	WINCHES, AFT	3	.15	37	.072	282	230	- do. - do.	- do. - do.
	STEERING GEAR	1	.10	19	.082	115	256	- do. - do.	- do. - do.
	WORKSHOP MOTOR	-	-	-	-	-	-	-	-
	VENTILATING FANS	-	-	-	-	-	-	-	-
	Lathe	1	.003	3	.036	69	20	rubber	Lead lined
	Drill	1	.003	3	.036	69	20	- do. - do.	- do. - do.
	Hot Salt Water lamps	1	.003	3	.036	69	20	- do. - do.	- do. - do.
	Oil Purifier	1	.003	3	.036	69	20	- do. - do.	- do. - do.

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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.

FOR HARLAND & WOLFF, LTD.

*John Dickenson* Electrical Engineers.  
 Director,

Date 19<sup>th</sup> February 1926

COMPASSES.

Distance between electric generators or motors and standard compass 152 ft.  
 Distance between electric generators or motors and steering compass 158 ft.

The nearest cables to the compasses are as follows:—

A cable carrying 3.4 Ampères 10 feet from standard compass 8 feet from steering compass.  
 A cable carrying 20.8 Ampères 30 feet from standard compass 26 feet from steering compass.  
 A cable carrying 44.4 Ampères 30 feet from standard compass 26 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 the* course in the case of the standard compass, and *nil* degrees on *all the* course in the case of the steering compass.

FOR HARLAND & WOLFF, LTD.

*John Dickenson* Builder's Signature.  
 Director,

Date 19<sup>th</sup> February 1926

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 and found satisfactory. The workmanship was found to be good and sound.*

It is submitted that this vessel is eligible for THE RECORD. *Elec. Light*  
*J.R.A. 2/2/26*

Total Capacity of Generators 195 Kilocwatts

The amount of Fee ... £ 36.5.0 : When applied for, 28/12/25

Travelling Expenses (if any) £ : When received, 30/12/25

*J.R. Rankin*  
 Surveyor to Lloyd's Register of Shipping.

Committee's Minute GLASGOW 23 FEB 1926

Assigned *Elec Light*

*a.s.*  
 22/2/26

Im. 9.21.—Transfer.  
 (The Surveyors are requested not to write on or below the space for Committee's Minute.)