

REPORT ON ELECTRIC FITTINGS.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

Date of writing Report **20-3-23** 19... When handed in at Local Office **11.4.23** Port of **GLASGOW** Received at London Office **WED. APR. 18 1923**

No. in Survey held at **GLASGOW** Date, First Survey **21.2.23** Last Survey **12.3.1923**
 Reg. Book. **19028** on the **"M.Y. ARABY"** (Number of Visits **5**)

Built at **DUMBARTON** By whom built **A. MACMILLAN & SON** Yard No. **630** When built **1923**
 Owners **D. MacIVER & CO. LTD** Port belonging to **LIVERPOOL**

Electric Light Installation fitted by **A. MACMILLAN & SON LTD** Contract No. **630** When fitted **1923**

System of Distribution **Two wire**

Pressure of supply for Lighting **220** volts, Heating **220** volts, Power **220** volts.

Direct or Alternating Current, Lighting **Direct current** Power **Direct current**

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** Are the lubricating arrangements of the generators as per Rule **Yes**

Position of Generators **Port side of motor rooms**

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 **not fitted near wood cat and do**, 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 **Aft end of motor room Port.**

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 **placed in same compartment**

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 **not fitted near combustible material**

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**, and is the 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 **Generators, 500 amp D.P. circuit breakers with overload & reverse current coils & 500 amp D.P. switches. Outgoing circuits 4-500 amp, 1-200 amp, & 15-100 amp D.P. switches & fuses. Equalizer switches 500 amp D.P. arranged in parallel.**

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 leads taken from bus bars (one from - & the other from +) through 2 D.P. switches, 2 D.P. fuses & 2 lampholders earthed at neutral point**

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**

Insulation of Cables, state type of cables, single or twin ^{single} and ^{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 3.5

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 Yes

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 No paper insulated cables 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 clipped to beams, plates etc. and protected by iron plates where necessary
 If cables are run in wood casings, are the casings and caps secured by screws ^{no wood casing used}, 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 VI Yes

Refrigerated Chambers, if lights are fitted, are the cables and fittings in accordance with the special requirements No Refrigerating Chamber

Joints in Cables, state if any, and how made, insulated, and protected No joints used

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 All electric light fittings where wood blocks are used, are earthed with copper wire sectional area of which is .0010
 , 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 Emergency lights in Engine Room entrance + starting platform fed from battery + controlled from switch in Engine Room entrance.

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, 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 fittings placed in spaces where goods are liable to be stacked
 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 None
 where are the controlling switches situated None

Searchlight Lamps, No. of None, whether fixed or portable —, are their fittings as per Rule —

Arc Lamps, other than searchlight lamps, No. of None, 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 Yes, 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 None fitted

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 Flash point of oil 170° F.
 If portable lamps for use in dangerous spaces are supplied, are they of a type approved by the Home Office Flash point of oil 170° F.

PARTICULARS OF GENERATING PLANT.									
DESCRIPTION OF GENERATOR.	No. of	RATED AT				DRIVEN BY.	WHERE DRIVEN BY AN INTERNAL COMBUSTION ENGINE.		
		Kilowatts.	Volts.	Amps.	Revs. per Min.		Fuel Used.	Flash Point of Fuel.	
MAIN	3	100	220	455	300	Diesel Engines	Oil	170° F	
AUXILIARY	Nil								
EMERGENCY	Nil								
ROTARY TRANSFORMER	Nil								

LIGHTING AND HEATING CONDUCTORS.									
Ref. No.	DESCRIPTION.	No. of Conductors.	Effective Area of each Conductor. Sq. Ins.	COMPOSITION OF STRAND.		Total Maximum Current. Amps.	Approximate Length. (Lead and Return.) Feet.	Insulated with	HOW PROTECTED.
				No.	Diameter.				
	MAIN GENERATOR	2	.4435	91	.103	455	120	V. J. R.	Asbestos
	AUXILIARY GENERATOR	—							
	EMERGENCY GENERATOR	—							
	ROTARY TRANSFORMER	—							
	AUXILIARY SWITCHBOARDS	—							
	ENGINE ROOM	—							
	BOILER ROOM	—							
	Motor Rm Lighting	2	.00701	7	.036	16	80	V. J. R.	Arm'd
	Accommodated Lighting	2	.02214	7	.064	30	120	"	Lead covered
	Cargo Lights	2	.02214	7	.064	20	120	"	Arm'd
	Navigation Lights	2	.00701	7	.036	4.5	300	"	"
	WIRELESS	2	.00701	7	.036	4.5	120	V. J. R.	Arm'd
	SEARCHLIGHT	—							
	MASTHEAD LIGHT	2	.00299	3	.036	.6	480	"	"
	SIDE LIGHTS	2	.00299	3	.036	.6	60	"	"
	COMPASS LIGHTS	2	.00299	3	.036	.15	12	"	Lead covered
	POOP LIGHTS	—							
	CARGO LIGHTS	2	.00299	3	.036	1.2	50	"	Arm'd
	ARC LAMPS H.C.P.	2	.00299	3	.036	1.4	50	"	"
	HEATERS	—							

MOTOR CONDUCTORS.									
Ref. No.	DESCRIPTION.	No. of Motors.	Effective Area of each Conductor. Sq. Ins.	COMPOSITION OF STRAND.		Total Maximum Current. Amps.	Approximate Length. (Lead and Return.) Feet.	Insulated with	HOW PROTECTED.
				No.	Diameter.				
	BALLAST PUMP	1	.04592	19	.072	88	120	V. J. R.	Arm'd
	MAIN BILGE LINE PUMPS	2	.02214	7	.064	20	180	"	"
	GENERAL SERVICE PUMP	—							
	EMERGENCY BILGE PUMP	—							
	SANITARY PUMP	—							
	CIRC. SEA WATER PUMPS	2	.03960	19	.052	60	190	"	"
	CIRC. FRESH WATER PUMPS	1	.00701	7	.036	12	100	"	"
	AIR COMPRESSOR	2	.49550	61	.103	300	190	"	"
	FRESH WATER PUMP	—							
	ENGINE TURNING GEAR	1	.06	19	.064	34	100	"	"
	ENGINE REVERSING GEAR	—							
	LUBRICATING OIL PUMPS	2	.06	19	.064	28	190	"	"
	OIL FUEL TRANSFER PUMP	1	.06	19	.064	28	200	"	"
	WINDLASS	1	.29560	2-37	.072	240	120	"	"
	WINCHES, Forward 7.Tons	5	.14780	37	.072	120	20	"	"
	WINCHES, Aft 4 " "	6	.14780	37	.072	120	20	"	"
	STEERING GEAR	1	.03960	19	.064	74	120	"	"
	WORKSHOP MOTOR	—							
	VENTILATING FANS	—							
	Hot Salt water Pump	1	.00299	3	.036	5	50	"	"
	Lathe	1	.00299	3	.036	5	40	"	"
	Drilling machine	1	.00299	3	.036	6	60	"	"
	20" Vent Fans	2	.00701	7	.036	17	80	"	"
	Piston Cooling water Pump	2	.02214	7	.064	12	80	"	"
	Oil Purifier	1	.00299	3	.036	7	40	"	"

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.

ARCHD McMILLAN & SON, LTD.
Garrick DIRECTOR.

Electrical Engineers.

Date 27th March 1923

COMPASSES.

Distance between electric generators or motors and standard compass 47 feet

Distance between electric generators or motors and steering compass 40 feet

The nearest cables to the compasses are as follows:—

A cable carrying 6.5 Ampères 11 feet from standard compass 8 feet from steering compass.

A cable carrying .5 Ampères 6 feet from standard compass 4 feet from steering compass.

A cable carrying .2 Ampères 8 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 the course in the case of the standard compass, and Nil degrees on all the course in the case of the steering compass.

ARCHD McMILLAN & SON, LTD.

Garrick DIRECTOR.

Builder's Signature.

Date 27th Mar 1923

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 & sound.

It is submitted that

this vessel is eligible for Elec. Light

J.P.A. 27/4/23.

Total Capacity of Generators 300 Kilowatts

The amount of Fee ... £39 0 0

Travelling Expenses (if any) £ 27 3 23

J.P. Rankin.
 Surveyor to Lloyd's Register of Shipping.

Committee's Minute GLASGOW 17 APR 1923

Assigned Elec. Light.

Im. 3.22.—Transfer.
 (The Surveyors are requested not to write on or below the space for Committee's Minute.)

HC
 16.4.23

