

REPORT ON ELECTRIC FITTINGS.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

Received at London Office

26 NOV 1924

Date of writing Report 17-11-1924 When handed in at Local Office 24.11.1924 Port of GLASGOW.

No. in Survey held at Reg. Book: 88670 on the M. V. "ELM WORTH" Date, First Survey 2.9.24 Last Survey 13.11.1924 (Number of Visits 9)

Tons { Gross 4962
Net 3039

Built at DUMBARTON By whom built ARCHD. McMILLAN & SON LTD. Yard No. 636 When built 1924

Owners DALGLIESH STEAM SHIPPING CO. LTD. Port belonging to NEWCASTLE.

Electric Light Installation fitted by ARCHD. McMILLAN & SON LTD. Contract No. 636 When fitted 1924

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 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

hot fitted near wood etc and do do, are the generators protected from mechanical injury and damage from water, steam or oil

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 Switchboard Room above Motor Room Port fore

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 In same Comp!

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 hot fitted near wood work etc

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, 300 amp D.P.

Circuit breakers & 300 amp Triple pole switches, Outgoing circuits, 1-4 pole 250 amp switch, 2-200 amp, 5-100 amp, & 4-50 amp D.P. switches, Equalizer switches on generator switches

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 Lamp System 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



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Lloyd's Register
Foundation

Single, Twin

Insulation of Cables, state type of cables, single or twin *Single, Twin* 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 Volts*

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*
by iron plates where necessary

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 *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 VI *Yes*

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

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

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 fixed on wood bulkheads are earthed with copper wire, actual 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 (6 in all) 1 over each generator & 3 fitted on ladderway down, fed from battery & controlled from switch in motor 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 *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 *None*, where are the controlling switches situated *None*

Searchlight Lamps, No. of *One*, whether fixed or portable *portable*, 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 *—*, 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 *Not 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 180° F.*

If portable lamps for use in dangerous spaces are supplied, are they of a type approved by the Home Office *" " " " 180° F.*

(Port forward) 1. removed Glasgow
1. 65 kva set removed 11.42 } See Navy report 24863.
1. 150 kva set fitted 11.42 }
13. 44177.

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	220	295	300	Diesel Engine	Oil 180° F	
ALTERNATIVE	1	150	220	687	600	Diesel Engine (Allen)	"	
EMERGENCY	1					5 cy.	"	
ROTARY TRANSFORMER	1						"	

fitted 11.42 at Navy No 24863

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 GENERATOR	2	0.49850	61	.103	295	100	U.S.R.	Asbestos
	AUXILIARY GENERATOR	-							
	EMERGENCY GENERATOR	-							
	ROTARY TRANSFORMER	-							
	AUXILIARY SWITCHBOARDS	4	0.30240	37	.103	710	180	"	"
	ENGINE ROOM	-							
	BOILER ROOM	-							
	Motor Rm lights P	2	0.01046	7	.044	26.5	20	"	Arm'd
	" " " S	2	0.00701	7	.036	4.5	20	"	"
	Accom. Lights	2	0.00701	7	.036	12.5	40	"	"
	Navigation Lights	2	0.00701	7	.036	2.5	260	"	"
	WIRELESS	2	0.00701	7	.036	7.5	240	U.S.R.	Arm'd
	SEARCHLIGHT	2	0.06000	19	.064	50	8	"	"
	MASTHEAD LIGHT	2	0.00290	3	.036	46	400	"	Lead covered
	SIDE LIGHTS	2	0.00290	3	.036	46	80	"	"
	COMPASS LIGHTS	2	0.00290	3	.036	3	30	"	"
	POOP LIGHTS	-							
	CARGO LIGHTS	2	0.00290	3	.036	2.4	40	"	Arm'd
	ARC LAMPS	2	0.00290	3	.036	1.4	60	"	"
	HEATERS	2	0.10090	19	.083	96	40	"	"

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	0.06000	19	.064	69	60	U.S.R. PC.	Arm'd
	MAIN BILGE LINE PUMPS	1	0.07462	7	.052	31	40	" PC.	"
	GENERAL SERVICE PUMP	-							
	EMERGENCY BILGE PUMP	-							
	SANITARY PUMP <i>on board</i>	2	0.03960	19	.052	50	30	" PC.	"
	CIRC. SEA WATER PUMPS	-							
	CIRC. FRESH WATER PUMPS	-							
	AIR COMPRESSOR	1	0.66620	91	.093	340	40	"	"
	FRESH WATER PUMP	-							
	ENGINE TURNING GEAR	1	0.02214	7	.064	41	120	"	"
	ENGINE REVERSING GEAR	-							
	LUBRICATING OIL PUMPS	2	0.01462	7	.052	33.5	60	"	"
	OIL FUEL TRANSFER PUMP	2	0.00701	7	.036	14	60	"	"
	WINDLASS	1	0.01478	37	.072	154	160	"	"
	WINCHES, FORWARD	4	0.07592	19	.072	95	25	"	"
	WINCHES, AFT	4	0.07592	19	.072	95	25	"	"
	STEERING GEAR	1	0.03960	19	.052	60	500	" PC.	"
	WORKSHOP MOTOR	-							
	VENTILATING FANS	-							
	Piston Cooling Pumps	2	0.00701	7	.036	15	30	" PC.	"
	Winch midship	1	0.07592	19	.072	95	90	"	"
	Warping Winch	1	0.11680	37	.064	130	200	"	"
	Lathes	1	0.00299	3	.036	5	45	" PC.	"
	Drilling machine	1	0.00299	3	.036	7	45	"	"
	Oil Purifier	2	0.00299	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 19th Nov, 1924

COMPASSES.

Distance between electric generators or motors and standard compass 65 feet

Distance between electric generators or motors and steering compass 63 feet

The nearest cables to the compasses are as follows:—

A cable carrying 2.5 Ampères 14 feet from standard compass 15 feet from steering compass.

A cable carrying .15 Ampères 2 feet from standard compass 1 feet from steering compass.

A cable carrying .15 Ampères 1 feet from standard compass 2 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 19th Nov 1924

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.

JWD.
CMS.
 27/11/24

280 kw

Total Capacity of Generators 195 Kilowatts

The amount of Fee ... £36.5.0. When applied for, 24/11/24

Travelling Expenses (if any) £ : : When received, La debite book.

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

Committee's Minute GLASGOW 25 NOV 1924

Assigned Elec. Light.

gr

a.c.
 24/11/24

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



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