

REPORT ON ELECTRIC FITTINGS.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

Received at London Office 24 Feb 1926

Date of writing Report 16 - 2 1926 When handed in at Local Office 20. 2. 26 19 Port of Glasgow

No. in Survey held at Govan Date, First Survey 3rd Dec 1925 Last Survey 5th Feb 1926
 Reg. Book. 40377 on the M. V. "Clivebank" (Number of Visits.....)

Built at Govan By whom built Messrs. Harland & Wolff Yard No. 684 Tons { Gross 5154
 Net

When built 1926

Owners Messrs. Andrew Weir & Co. Port belonging to

Electric Light Installation fitted by Messrs. Harland & Wolff Govan Contract No. 684 When fitted 1926.

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 { 2 Diesel driven in parallel, is an adjustable regulating resistance fitted in series with each shunt field 1 C.O. to steam.

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 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 — 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 Off end of Engine Room over thrust recess.

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, 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 3 double pole circuit breakers for generators, two interlocked with single pole switch for paralleling Diesel Dynamos. Double pole change over switch & 2 single pole fuses for outgoing circuits

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 2 lamps & 2 linked single pole 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

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 *5.5*

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 socket *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 *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 *Clipped direct to wood bulk head and on S. Iron perforated plating in Engine Room. Run on wood with S. Iron casing along decks. L.A.B. on portable E.R. gratings. L.C. chamber.*
 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 VI *—*

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 *All radiators earthed with 3/029 wire.*
 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 *— Yes*

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 *—*

are any fittings placed in spaces where inflammable or explosive dust or gases are liable to be present, if so, how are they protected *—*

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 *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 *—*

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 ...	2	65 each	220 ea.	295 each	300	Diesel Driven	British Mee.	closed 176° F. open 170° F.
AUXILIARY	1	65	220	295	500	Steam Driven		
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. Ampères.	Approximate Length. (Lead and Return.) Feet.	Insulated with	HOW PROTECTED.
				No.	Diameter.				
	MAIN GENERATOR 2 & 3	1 per pole	.5	61	.163	295	180 3 leads	Rubber	Lead based
	AUXILIARY GENERATOR 1	"	.5	61	.163	295	162 2 leads	"	"
	EMERGENCY GENERATOR	"	"	"	"	"	"	"	"
	ROTARY TRANSFORMER	"	"	"	"	"	"	"	"
	AUXILIARY SWITCHBOARDS	"	"	"	"	"	"	"	"
	ENGINE ROOM	1 per pole	.007	7	.036	10.5	56	"	"
	BOILER ROOM	"	"	"	"	"	"	"	"
	WIRELESS	1 per pole	.007	7	.036	10	130	Rubber	Lead based
	SEARCHLIGHT	"	"	"	"	"	"	"	"
	MASTHEAD LIGHT	1 per pole	.003	3	.036	45	650	"	"
	SIDE LIGHTS	2	.002	3	.029	45	96	"	"
	COMPASS LIGHTS	2	.002	3	.029	15	34	"	"
	POOP LIGHTS	2	.002	3	.029	27	32	"	"
	CARGO LIGHTS	2	.003	3	.036	3.9	530	"	"
	ARC LAMPS	"	"	"	"	"	"	"	"
	HEATERS	1 per pole	.002	3	.029	5.5	66	"	"

MOTOR CONDUCTORS.

Ref. No.	DESCRIPTION.	No. of Motors.	Effective Area of each Conductor. Sq. Ins.	COMPOSITION OF STRAND.		Total Maximum Current. Ampères.	Approximate Length. (Lead and Return.) Feet.	Insulated with	HOW PROTECTED.
				No.	Diameter.				
	BALLAST PUMP	1	.075	19	.072	76	56	Rubber	Lead based
	MAIN BILGE LINE PUMPS	1	.007	7	.036	22	24	"	"
	GENERAL SERVICE PUMP	"	"	"	"	"	"	"	"
	EMERGENCY BILGE PUMP	"	"	"	"	"	"	"	"
	SANITARY PUMP	1	.06	19	.064	77	40	"	"
	CIRC. SEA WATER PUMPS	1	.04	19	.052	60	36	"	"
	CIRC. FRESH WATER PUMPS	2	.007	7	.036	17.5	26	"	"
	AIR COMPRESSOR	1	.6	91	.093	340	130	"	"
	FRESH WATER PUMP	"	.0226	"	"	"	"	"	"
	ENGINE TURNING GEAR	2	.0226	7	.064	40	74	"	"
	ENGINE REVERSING GEAR	"	"	"	"	"	"	"	"
	LUBRICATING OIL PUMPS	3	.0445	7	.052	31.5	26	"	"
	OIL FUEL TRANSFER PUMP	1	.007	7	.036	17	56	"	"
	WINDLASS	"	"	"	"	"	"	"	"
	WINCHES, FORWARD	"	"	"	"	"	"	"	"
	WINCHES, AFT	"	"	"	"	"	"	"	"
	STEERING GEAR	1	.075	19	.072	76	530	"	"
	WORKSHOP MOTOR	"	"	"	"	"	"	"	"
	VENTILATING FANS	1	.007	7	.036	13	32	"	"
	Hot Soot Blower	1	.003	3	.036	10	64	"	"
	Oil purifier	1	.003	3	.036	8	22	"	"
	Lake	1	.003	3	.036	6.5	20	"	"
	Drill	1	.003	3	.036	8.5	20	"	"

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 Dickison, Electrical Engineers.
 Director.

Date 16-2-26.

COMPASSES.

Distance between electric generators or motors and standard compass

90 feet

Distance between electric generators or motors and steering compass

88 feet

The nearest cables to the compasses are as follows:—

A cable carrying 5 Ampères 12 feet from standard compass 6 feet from steering compass.

A cable carrying 3.4 Ampères 18 feet from standard compass 12 feet from steering compass.

A cable carrying 1.5 Ampères 12 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.

FOR HARLAND & WOLFF, LTD.

John Dickison, Builder's Signature.
 Director.

Date 16-2-26

Is this installation a duplicate of a previous case? No. If so, state name of vessel M.V. Severn bank

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. 2/3/26

Total Capacity of Generators 195 Kilowatts

The amount of Fee ... £ 36.5.0 : When applied for, 15/2/26

Travelling Expenses (if any) £ : : When received, 13/3/26

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

Committee's Minute GLASGOW 23 FEB 1926

Assigned Elec. Light.

a.l.b.
 20/2/26

Im. 9, 21, -U, answer.
 (The Surveyors are requested not to write on or below the space for Committee's Minute.)



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