

REPORT ON ELECTRICAL EQUIPMENT.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

7 AUG 1935

Received at London Office

Date of writing Report 23-7-1935 When handed in at Local Office 3.8.1935 Port of Glasgow.
 No. in Survey held at Port Glasgow, Glasgow. Date, First Survey 11.4.35 Last Survey 23-7-1935
 Reg. Book. 29640 on the S.S. "MARWARRI" (Number of Visits 7)
 Tons { Gross 8031
 Net
 Built at Port Glasgow. By whom built Wm. Hamilton & Co. Ltd. Yard No. 417 When built 1935
 Owners J. J. Brocklebank & Co. Ltd. Port belonging to Liverpool
 Electric Light Installation fitted by Clarke Chapman & Co. Ltd. Contract No. 417 When fitted 1935
 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

No

Where more than one generator is fitted are they arranged to run in parallel

No

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

Main Engine Room, Bottom Platform.

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

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 near to generators.

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

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

Yes

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

Sunderland

is the non-hygroscopic insulating material of an approved

type

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. Change-over 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

None

Instruments on main switchboard

2

ammeters

2

voltmeters

synchronising device for paralleling purposes. For compound machines is the ammeter connected on the opposite pole to equaliser connection

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
construction, protection, insulation, material, and position of these as per rule
Cables: Single, twin, concentric, or multicore
If the cables are insulated otherwise than as per Rule, are they of an approved type
any point of the installation under maximum load
area of 0.04 square inch and above provided with soldering sockets
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
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
Support and Protection of Cables, state how the cables are supported and protected
If cables are run in wood casings, are the casings and caps secured by screws
separate grooves
Refrigerated Chambers, are the cables and fittings in accordance with the special requirements
Joints in Cables, state if any, and how made, insulated, and protected
Watertight Glands and Deck Tubes, are all cables passing through decks and watertight bulkheads provided with deck tubes or watertight glands
Bushes in Beams and Non-watertight Partitions, where unarmoured cables pass through beams and non-watertight partitions, are the holes efficiently bushed
Earthing Connections, state what earthing connections are fitted and their respective sectional areas
Alternative Lighting, are the groups of lights in the propelling machinery space arranged as per Rule
position and method of control of the emergency supply and how the generator is driven
Navigation Lamps, are these separately wired
are the switches and fuses grouped in a position accessible only to the officers on watch
has each navigation lamp an automatic indicator as per Rule
Fittings, are all fittings on weather decks, in stokeholds and engine rooms and wherever exposed to drip or condensed moisture, watertight
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
where are the controlling switches situated
are all fittings suitably ventilated
Heating and Cooking Appliances, are they constructed and fitted as per Rule
Searchlight Lamps, No. of
Arc Lamps, other than searchlight lamps, No. of
Motors, are their working parts readily accessible
are the brushes, brush holders, terminals and lubricating arrangements as per Rule
inflammable gases cannot accumulate and clear of all inflammable material
water, steam or oil
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
have machines of over 100 BHP been inspected by the Surveyors during manufacture and testing
field and motor speed regulators, starters and controllers constructed and fitted as per Rule
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 self-contained, battery-fed type approved by the Home Office
Spare Gear, if the vessel is for open sea service have spares been supplied as per Rule

Joint Boxes, Section and Distribution Boards, is the

Fall of Pressure, state maximum between bus bars and

Cable Sockets, are the ends of all cables having a sectional

Paper Insulated and Varnished Cambric Insulated Cables.

Cable Runs, are the cables fixed as far as possible in accessible positions

Support and Protection of Cables, state how the cables are supported and protected

are the cap screws of brass

Refrigerated Chambers, are the cables and fittings in accordance with the special requirements

Joints in Cables, state if any, and how made, insulated, and protected

Watertight Glands and Deck Tubes, are all cables passing through decks and watertight bulkheads provided with deck tubes or watertight glands

Bushes in Beams and Non-watertight Partitions, where unarmoured cables pass through beams and non-watertight partitions, are the holes efficiently bushed

state the material of which the bushes are made

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

Emergency Supply, state

position and method of control of the emergency supply and how the generator is driven

Navigation Lamps, are these separately wired

are the switches and fuses grouped in a position accessible only to the officers on watch

has each navigation lamp an automatic indicator as per Rule

Secondary Batteries, are they constructed and fitted as per Rule

Fittings, are all fittings on weather decks, in stokeholds and engine rooms and wherever exposed to drip or condensed moisture, watertight

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

where are the controlling switches situated

are all fittings suitably ventilated

Heating and Cooking Appliances, are they constructed and fitted as per Rule

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

are the coils self-contained and readily removable for replacement

are the brushes, brush holders, terminals and lubricating arrangements as per Rule

inflammable gases cannot accumulate and clear of all inflammable material

water, steam or oil

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

have machines of over 100 BHP been inspected by the Surveyors during manufacture and testing

field and motor speed regulators, starters and controllers constructed and fitted as per Rule

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

are all fuses of the filled cartridge type

are they of an approved type

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

Spare Gear, if the vessel is for open sea service have spares been supplied as per Rule

PARTICULARS OF GENERATING PLANT.

DESCRIPTION OF GENERATOR.	No. of	RATED AT			Revs. per Min.	DRIVEN BY	WHERE DRIVEN BY AN INTERNAL COMBUSTION ENGINE.	
		Kilowatts.	Volts.	Amperes.			Fuel Used.	Flash Point of Fuel.
MAIN	2.	15	110	136.5	400	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	.14780	37	.072	136.5	152	40	V.I.R	R.C.
EQUALISER CONNECTIONS									
AUXILIARY GENERATOR									
EMERGENCY GENERATOR									
ROTARY TRANSFORMER									
ENGINE ROOM	1	.02214	7	.064	30	46	140	V.I.R	R.C.A.B
BOILER ROOM									
AUXILIARY SWITCHBOARDS									
ACCOMMODATION	1	.01046	7	.044	16	31	600	V.I.R	R.C.B
Engineers	1	.02214	7	.064	27	46	420	V.I.R	R.C.B
Saloon	1	.03960	19	.052	43	64	220	V.I.R	R.C.B
Navigation	1	.00701	7	.036	5	24	380	V.I.R	R.C.B
WIRELESS	1	.01462	7	.052	30	37	400	V.I.R	R.C.B
SEARCHLIGHT	1	.03960	19	.052	60	64	740	V.I.R	R.C.B
MASTHEAD LIGHT	1	.00944	3	.029	36	7.8	550	V.I.R	R.C.B
SIDE LIGHTS	1	.00194	3	.029	36	7.8	65	V.I.R	R.C.B
COMPASS LIGHTS	1	.00194	3	.029	10	7.8	30	V.I.R	R.C.B
POOP LIGHTS	1	.01046	7	.044	16	31	420	V.I.R	R.C.B
CARGO LIGHTS	1	.01046	7	.044	21	31	220	V.I.R	R.C.B
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 S	2	1	.00455	7	.029	13.5	18.2	100	V.I.R	R.C.A.B
VENTILATING FANS										
Refrig. Brine Pump	2	1	.00455	7	.052	35	37	130	V.I.R	R.C.A.B
Oil Purifier	1	1	.00455	7	.029	6.8	18.2	40	V.I.R	R.C.A.B

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 of the installation by Chapman & Co., Ltd.

M. C. Laidon Director Electrical Engineers.

Date *July 29th 1935*

COMPASSES.

Distance between electric generators or motors and standard compass

190 ft

Distance between electric generators or motors and steering compass

180 ft

The nearest cables to the compasses are as follows:—

A cable carrying *10* Amperes *12* feet from standard compass *12* feet from steering compass.

A cable carrying *5* Amperes *12* feet from standard compass *8* feet from steering compass.

A cable carrying *30* Amperes *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 *Yes*

The maximum deviation due to electric currents was found to be *1/2* degrees on *any* course in the case of the standard compass, and *1/2* degrees on *any* course in the case of the steering compass.

W. H. Laidon

Builder's Signature.

Date *29. 7. 35*

Is this installation a duplicate of a previous case *No*. If so, state name of vessel *T*

General Remarks (State quality of workmanship, opinions as to class, &c. *The electrical equipment of this*

vessel has been fitted on board under special survey, tested under full working conditions and found satisfactory. The materials and workmanship were found good and sound.

8/8/35

W. H. Laidon
8/8/35

Total Capacity of Generators *30* Kilowatts.

The amount of Fee ... £ *22 : 10* : *02* 2 JUL 1935

Travelling Expenses (if any) £ *9/-* 27 JUL 1935

A. A. Affner
Surveyor to Lloyd's Register of Shipping.

Committee's Minute *GLASGOW 6th AUG 1935*

Assigned *Transmit to London*