

## REPORT ON ELECTRICAL EQUIPMENT.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

15 NOV 1939

Received at London Office

Date of writing Report

6<sup>th</sup> November 1939

When handed in at Local Office

13. 11. 1939

Port of

GLASGOW.

No. in Survey held at

PORT GLASGOW &amp; GREENOCK.

Date, First Survey

13. 9. 39

Last Survey

7<sup>th</sup> November 1939.

Reg. Book.

(Number of Visits.....)

39219. on the S.S. 'GLENPARK'

Tons { Gross 5136  
Net 3057

Built at

PORT GLASGOW.

By whom built

LITHGOWS. L<sup>td</sup>.

Yard No.

922. When built

1939.

Owners

THE DENHOLM LINE STEAMERS L<sup>td</sup>.

Port belonging to

GREENOCK.

Electric Light Installation fitted by

H.T. ROBERTSON & C<sup>o</sup>.

Contract No.

922. When fitted

1939.

Is the Vessel fitted for carrying Petroleum in bulk

No.

## System of Distribution

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

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

—

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

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 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

Near generator.

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, 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

Sindanfo.

is the non-hygroscopic insulating material of an approved

type

Yes.

Yes.

Yes.

Are the fittings as per Rule regarding: — spacing or shielding of live parts

accessibility of all parts

Yes.

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

Generator controlled by DP Switch &amp; fuses, each outgoing circuit by SP Switch &amp; DP fuses

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

Instruments on main switchboard

One

ammeters

One

voltage

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 Yes.

Joint Boxes, Section and Distribution Boards, is the construction, protection, insulation, material, and position of these as per rule Yes.

Cables: Single, twin, concentric, or multicore Single twin are the cables insulated and protected as per Tables IV, V, X or XI of the Rules Yes.

If the cables are insulated otherwise than as per Rule, are they of an approved type 570kV.

Fall of Pressure, state maximum between bus bars and any point of the installation under maximum load 570kV.

Cable Sockets, are the ends of all cables having a sectional area of 0.04 square inch and above provided with soldering sockets Yes.

Paper Insulated and Varnished Cambric Insulated Cables, 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 Yes., or waterproof insulating tape Yes.

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. Are cables in machinery spaces, galleys, laundries, bathrooms and lavatories lead covered or run in conduit Yes.

Support and Protection of Cables, state how the cables are supported and protected Main's V.R. in conduit, wiring in Machinery spaces L.C.B. clipped to skeleton. Wiring in accommodation L.C. clipped

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 VIII Yes.

Refrigerated Chambers, are the cables and fittings in accordance with the special requirements None.

Joints in Cables, state if any, and how made, insulated, and protected None.

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 Partitions, 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 Bad

Earthing Connections, state what earthing connections are fitted and their respective sectional areas Lead sheathing of cables  
efficiently earthed by means of clips or bonding glands.  
 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 on automatic indicator as per Rule Yes. Secondary Batteries, are they constructed and fitted as per Rule 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 Yes.

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

where are the controlling switches situated Yes.

are all fittings suitably ventilated Yes. are all switches and lampholders constructed wholly of non-ignitable, non-absorbent materials Yes.

Heating and Cooking Appliances, are they constructed and fitted as per Rule Yes. are air heaters constructed and fitted as per Rule Yes.

Searchlight Lamps, No. of Yes. whether fixed or portable Yes. are their fittings as per Rule Yes.

Are Lamps, other than searchlight lamps, No. of Yes. are their live parts insulated from the frame or case Yes. are their fittings as per Rule Yes.

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 axes 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 Yes. and Yes.

have machines of over 100 BHP been inspected by the Surveyors during manufacture and testing Yes. Control Gear and Resistances, are the generator field and motor speed regulators, starters and controllers constructed and fitted as per Rule Yes. Lightning Conductors, where lightning conductors are required, are these fitted as per Rule Yes.

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 Yes. are all fuses of the fitted cartridge type Yes. are they of an approved type Yes.

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

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

# 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 ...	1	12	110	109	950	Steam engine.		
AUXILIARY ...		The above run over a 30 Kw 115 V. 261 Amp Steam driven set substituted 6/47						
EMERGENCY ...		A 10 Kw generating set is aboard 947.						
ROTARY TRANSFORMER								

## GENERATOR, LIGHTING AND HEATING CONDUCTORS.

DESCRIPTION.	CONDUCTORS.		COMPOSITION OF STRAND.		TOTAL MAXIMUM CURRENT.		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	0.1	19	.083	109	118.	30	Rubber.	L.C.B.
EQUALISER CONNECTIONS ...									
AUXILIARY GENERATOR ...									
EMERGENCY GENERATOR ...									
ROTARY TRANSFORMER MOTOR GENERATOR ...									
ENGINE ROOM ...	1	0.007	7	.036	13	24	10	Rubber.	L.C.B.
BOILER ROOM ...									
AUXILIARY SWITCHBOARDS ...									
ACCOMMODATION ...									
Engine room, 2B.	1	0.0045	7	.029	12	18.2	80	Rubber.	Conduit.
Saloon & Bridge, 2B.	1	0.01	7	.044	20	31.0	300	"	"
WIRELESS ...	1	0.0045	7	.029	5	18.2	300	"	"
SEARCHLIGHT ...	1	.002	3	.029	36	7.8	385	"	"
MASTHEAD LIGHT ...	1	.002	3	.029	36	7.8	60	"	"
SIDE LIGHTS ...	1	.002	3	.029	2	7.8	30	"	"
COMPASS LIGHTS ...	1	.0045	7	.029	8	18.2	320	"	"
POOP LIGHTS ...	1	0.007	7	.036	13	24	80	"	"
CARGO LIGHTS ...	1	.0045	7	.029	6.5	18.2	180	"	"
HEAD LIGHTS ...	1	.0045	7	.029	6.5	18.2	400	"	"

## MOTOR CONDUCTORS.

DESCRIPTION.	No. of Motors.	CONDUCTORS.		COMPOSITION OF STRAND.		TOTAL MAXIMUM CURRENT.		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 ...										
VENTILATING FANS ...										
DOMESTIC REFRIG. COMPRESSOR MOTOR.	2	1	0.01	7	.044	28	31.0	260	Rubber.	Conduit.
ALCO. PUMP MOTOR.	1	1	0.01	7	.044	18	31.0	180	"	"
	1	1	.003	3	.036	10	12.0	250	"	"



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.

*H. J. Robertson & Co.*

Electrical Engineers.

Date *8<sup>th</sup> Nov. '39*

COMPASSES.

Distance between electric ~~generators~~ or motors and standard compass

*35 feet.*

Distance between electric ~~generators~~ or motors and steering compass

*30 feet.*

The nearest cables to the compasses are as follows:—

A cable carrying *2* Amperes *led into* ~~feet from~~ standard compass *led into* ~~feet from~~ steering compass.

A cable carrying *4* Amperes *10* feet from standard compass *8* feet from steering compass.

A cable carrying Amperes feet from standard compass 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 *any* course in the case of the standard compass, and *nil* degrees on *any* course in the case of the steering compass.

GLASGOWS LIMITED

*John Muirhead*

Builder's Signature.

Date *9<sup>th</sup> Nov. 1939*

Is this installation a duplicate of a previous case

*Yes.*

If so, state name of vessel

*S.S. "BROOM PARK"*

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 workmanship and material are good.*

*Noted.*  
*17/11/39*

*906*  
*13/11/39*

Total Capacity of Generators *12* Kilowatts.

The amount of Fee ... £ *12* : -

When applied for.

*11-6-39*

Travelling Expenses (if any) £

*16/11*

When received.

*20/11/39*

*S. G. Findlay*

Surveyor to Lloyd's Register of Shipping.

Committee's Minute **GLASGOW** **14 NOV 1939**

SEE ACCOMPANYING MACHINERY REPORT.

Assigned



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Foundation