

# REPORT ON ELECTRICAL EQUIPMENT.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

Date of writing Report 19 When handed in at Local Office 24 AUG. 1936 Port of NEWCASTLE-ON-TYNE Received at London Office 25 AUG. 1936

No. in Survey held at Sunderland. Date, First Survey 10 July Last Survey Aug 21 1936  
Reg. Book. Suth. (Number of Visits 7)

40097 on the S.S. "St. Margaret".

Built at Sunderland By whom built J. L. Thompson Yard No. 574. When built 1936  
Owners St. Quentin Shipping Co. Ltd. Port belonging to Newport.

Electric Light Installation fitted by Messrs Sunderland Forge & Eng. Co. Ltd. Contract No. 574. When fitted 1936.

Is the Vessel fitted for carrying Petroleum in bulk No.

Tons { Gross 4312  
Net 2604

System of Distribution Double wire

Pressure of supply for Lighting 110 volts, Heating — volts, Power 110 volts.

Direct or Alternating Current, Lighting Direct Power 110 volts.

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 Engine room starboard side, 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 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 Engine room starboard side.

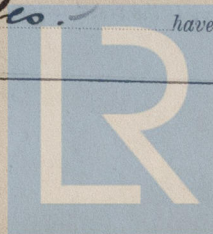
If the generators and main switchboard are not placed in the same compartment, is each generator provided with a fuse on each insulated pole as near as possible to the terminals of the generator, additional to that provided on the main switchboard —

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 Yes, is the non-hygroscopic insulating material of an approved type Yes, and is the frame effectively earthed 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.S. + D.P. fuses on dynamo trains. S.P. switch + D.P. fuses on 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 — Instruments on main switchboard 1 ammeters 1 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 E. lamps coupled to earth through switches & fuses. 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



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current protection devices been tested under working conditions.                      **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 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                      **Fall of Pressure**, state maximum between bus bars and any point of the installation under maximum load 3. 8 volts

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

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                     , or waterproof insulating tape                      **Paper Insulated and Varnished Cambric Insulated Cables**, are the cables fired 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 L.C.A.B. clipped up to beams in tween decks. Acc<sup>d</sup> L.C. cables clipped up with brass clips.

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 VIII Yes.

**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 none made

**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 brushed Yes. state the material of which the bushes are made lead.

**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 Yes. **Emergency Supply**, state position and method of control of the emergency supply and how the generator is driven                     

**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. **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 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                     

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

**Heating and Cooking Appliances**, are they constructed and fitted as per Rule                     , are air heaters 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 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                     , if not of this type, state distance of the combustible material horizontally or vertically above the motors                      and                     

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

**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 Yes.



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# PARTICULARS OF GENERATING PLANT.

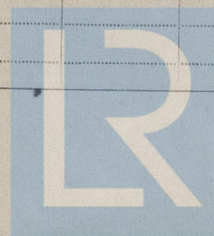
DESCRIPTION OF GENERATOR.	No. of	RATED AT				DRIVEN BY	WHERE DRIVEN BY AN INTERNAL COMBUSTION ENGINE.	
		Kilowatts.	Volts.	Ampères.	Revs. per Min.		Fuel Used.	Flash Point of Fuel.
MAIN ...	1	12.0	110	114	850	Single cylinder steam engine		
AUXILIARY ...								
EMERGENCY ...								
ROTARY TRANSFORMER								

## 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.	TOTAL MAXIMUM CURRENT. AMPERES.				
					Circuit.	Rule.			
MAIN GENERATOR ... ..	1	.06	19	.064	114	122.	12	V.C.	LCA+B.
EQUALISER CONNECTIONS ... ..									
AUXILIARY GENERATOR ... ..									
EMERGENCY GENERATOR ... ..									
ROTARY TRANSFORMER { MOTOR GENERATOR ... ..									
ENGINE ROOM ... ..	1	.0045	7	.029	8.64	18.2	30	V.I.R.	LCA+B.
BOILER ROOM ... ..									
AUXILIARY SWITCHBOARDS ... ..									
ACCOMMODATION midships	1	.04	19	.052	48.4	64	186	50	50
" aft	1	.007.	7	.036	20.4	24	120	50	50
WIRELESS ... ..	1	.0225	7	.064	5.0	46	198	50	50
SEARCHLIGHT ... ..									
MASTHEAD LIGHT ... ..	1	.003	1	.064	.4	12.9	230	50	50
SIDE LIGHTS ... ..	1	.0015	1	.044	.4	16.1	45	50	L.C.
COMPASS LIGHTS ... ..	1	.0015	1	.044	.25	6.1	35	50	L.C.
POOR LIGHTS ... ..	1	.003	1	.064	.4	12.9	340	50	LCA+B.
CARGO LIGHTS ... ..	1	.003	1	.064	2.75	12.9	160	50	50.
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										
VENTILATING FANS										
Oil pumps	2	1	.0045	7	.029	18.0	18.2	30	V.I.R.	LCA+B.
Like motor	1	1	.007	7	.036	225	24.0	30	V.I.R.	50
Barometer	—	1	.002	3	.029	2.0	17.8	168	50	50



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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.

*M<sup>rs</sup> Sunderland Large & Co Ltd*  
*St Helena.*

Electrical Engineers.

Date *18-8-1936*

#### COMPASSES.

Distance between electric generators or motors and standard compass *260 feet.*

Distance between electric generators or motors and steering compass *248 feet.*

The nearest cables to the compasses are as follows:—

A cable carrying *25* Amperes *12* feet from standard compass *on the* feet from steering compass.

A cable carrying *25* Amperes *on the* feet from standard compass *12* 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 *all* course in the case of the standard compass, and *nil* degrees on *all* course in the case of the steering compass.

JOSEPH L. THOMPSON & SONS, LIMITED,

*R. C. Thompson*

Builder's Signature.

Date

Is this installation a duplicate of a previous case *Yes.* If so, state name of vessel *St. Helena.*

General Remarks (State quality of workmanship, opinions as to class, &c. *The above inst<sup>n</sup> has been fitted out under special survey. The materials used & workmanship are good. The insulation resistance tested & found good. On completion the dynamo, governor, main board, fuses, cables & fittings were examined and tested under working conditions & found satisfactory. The vessel is eligible in my opinion for notation. E. S. D.*

*Noted*

*Ymn*

*28.8.36*

Total Capacity of Generators *12* Kilowatts.

The amount of Fee ... £ *12* : - : *21 AUG 1936*

*(Inc. 2%)*

Travelling Expenses (if any) £ : : *29.8.36*

When received.

FRI. 28 AUG 1936

Committee's Minute

Assigned

*See Sld JE 31892*

*W. T. Badger*

Surveyor to Lloyd's Register of Shipping.