

REPORT ON ELECTRICAL EQUIPMENT.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

Received at London Office

Date of writing Report 14th Sept. 1938 When handed in at Local Office 28 SEP. 1938 Port of Sunderland
 No. in Survey held at Sunderland Date, First Survey 22nd Aug. Last Survey 12th Sept. 1938
 Reg. Book. Suppl. (Number of Visits 5)
88909 on the S.S. 'LODESTONE'
 Built at Sunderland By whom built Bartram & Co., Ltd. Yard No. 280 When built 1938
 Owners Alva S.S. Co. Ltd. Port belonging to London
 Electric Light Installation fitted by Bartram & Co., Ltd. Contract No. 280 When fitted 1938
 Is the Vessel fitted for carrying Petroleum in bulk no

System of Distribution Double wirePressure of supply for Lighting 110 volts, Heating — volts, Power 110 volts.Direct or Alternating Current, Lighting Direct Power DirectIf 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 YesGenerators, do they comply with the requirements regarding temperature rise Yes, are they compound wound Yesare 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 Only one fitted, is an adjustable regulating resistance fitted in series with each shunt field no. volts controlled by governorHave certificates of test results for machines under 100 kw. been submitted and approved Yes. Cert. furnishedHave machines over 100 kw. been inspected by the Surveyors during manufacture and testing none fittedHave certificates for generators under 100 kw. been supplied and approved Manufacturers' test cert. only suppliedAre 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 YesAre the lubricating arrangements of the generators as per Rule YesPosition of Generators Engine room starboard side aft, is the ventilation in way of the generators satisfactory Yesare they clear of all inflammable material Yes if situated near unprotectedwoodwork 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 YesEarthing, are the bedplates and frames of the generating plant efficiently earthed Yes are the prime movers and their respective generators in metallic contact YesMain Switch Boards, where placed Engine room starboard side on after bulkheadIf 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 Yesif 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 Yesis all insulation of high dielectric strength and of permanently high insulation resistance Yesis 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 —is the non-hygroscopic insulating material of an approved type —and is the frame effectively earthed Yes Are the fittings as per Rule regarding:— spacing or shielding of live partsYes, accessibility of all parts Yes, absence of fuses on back of board Yes, temperature rise ofomnibus 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 ofswitches no Main Switchgear, description of switchgear for each generator and each outgoing circuit, and arrangement of equalizer switchesD.P. sw. & D.P. fuse on generator main; S.P. sw. & D.P. fuses on outgoing circuitsAre turbine driven generators fitted with emergency trip switch as per rule. — Are cupboards or compartments containing switchboards composed offire-resisting material or lined with approved material — Instruments on main switchboard One ammeters Onevoltage meters — 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 systemE lamps coupled to E through fuses only. 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 — are all fuses labelled as per rule *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* are the cables insulated and protected as per Tables IV, V, X, XI, XII or XIII of the Rules *Yes*

If the cables are insulated otherwise than as per Rule, are they of an approved type — *Yes*

any point of the installation under maximum load *Less than 5.3 volts* *Yes*

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 — *Yes*

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 *Yes*

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 — *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 *Yes*

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

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 switches 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 they ventilated as per Rule — *Yes*

Fittings, are all fittings on weather decks, in storerooms 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 —, are air heaters constructed and fitted as per Rule — *Yes*

Searchlight Lamps, No. of *Home fitted* whether fixed or portable —, 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*, 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 — *Yes*

have machines of over 100 BHP been inspected by the Surveyors during manufacture and testing *Home fitted* have certificates for all motors for essential services been supplied and approved *Yes*

regulators, starters and controllers constructed and fitted as per Rule *Yes*

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 flameproof type approved for use in dangerous spaces — *Yes*

Spare Gear, if the vessel is for open sea service have spares been supplied as per Rule *Yes* are they suitably stored in dry situations *Yes*

are they of an approved type — *Yes*

are they of an approved type — *Yes*

are they of an approved type — *Yes*

are they of an approved type — *Yes*

are they of an approved type — *Yes*

are they of an approved type — *Yes*

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are they of an approved type — *Yes*

are they of an approved type — *Yes*

are they of an approved type — *Yes*

are they of an approved type — *Yes*

are they of an approved type — *Yes*

PARTICULARS OF GENERATING PLANT.

DESCRIPTION OF GENERATOR.	No. of	RATED AT				DRIVEN BY	WHERE DRIVEN BY AN INTERNAL COMBUSTION ENGINE.	
		Kilowatts.	Volts.	Amperes.	Revs. per Min.		Fuel Used.	Flash Point of Fuel.
MAIN ...	1	12.5	110	114	550	Single cylinder steam engine		
AUXILIARY ...								
EMERGENCY ...								
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	1	19	.083	118	118	24	V.I.R.	L.C.
EQUALISER CONNECTIONS ...									
AUXILIARY GENERATOR ...									
EMERGENCY GENERATOR ...									
ROTARY TRANSFORMER / MOTOR GENERATOR ...									
ENGINE ROOM ...									
BOILER ROOM ...	1	.01	7	.044	18	31	8	V.I.R.	L.C. & A.
AUXILIARY SWITCHBOARDS ...									
Cargo Hg. S.B. feed ...	1	.01	7	.044	22	31	84	V.I.R.	L.C. & A.
Supply - Hg. Cargo ...	1	.01	7	.044	12	31	340	V.I.R.	In pipe
Aft Cargo ...	1	.01	7	.044	10	31	160	V.I.R.	In pipe
ACCOMMODATION ...									
Saloon & Messing ...	1	.01	7	.044	20	31	280 + 60	V.I.R.	L.C. & A. in pipe
Engine & Aft ...	1	.01	7	.044	12	31	84 + 320	V.I.R.	L.C. & A. in pipe
WIRELESS ...	1	.01	7	.044	15	31	320	V.I.R.	L.C. & A. in pipe
SEARCHLIGHT ...									
MASTHEAD LIGHT ...	1	.002	3	.029	.36	7.8	600	V.I.R.	L.C. & A. in pipe
SIDE LIGHTS ...	1	.002	3	.029	.36	7.8	60	V.I.R.	L.C. & A.
COMPASS LIGHTS ...	1	.002	3	.029	.14	7.8	40	V.I.R.	L.C. & A.
STOWAGE LIGHTS ...	1	.002	3	.029	.36	7.8	700	V.I.R.	L.C. & A. in pipe
CARGO LIGHTS ...									
HEATERS ...									

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 ...										
Refrig. Maching ...	1	1	.007	7	.036	16	24	300	V.I.R.	L.C. & A. in pipe

The Electrical Equipment is installed in accordance with the approved plans.

All Insulated Conductors are guaranteed to withstand the immersion and resistance tests specified in the Rules.

The foregoing is a correct description.

Benjamin P. Smith
Electrical Engineers.
SECRETARY & ACCOUNTANT

Date *20th Sept, 1938*

COMPASSES.

Minimum distance between electric generators or motors and standard compass *112 feet*

Minimum distance between electric generators or motors and steering compass *108 feet*

The nearest cables to the compasses are as follows:—

A cable carrying *14* Amperes *on the* feet from standard compass *12* feet from steering compass.

A cable carrying *14* Amperes *12* feet from standard compass *on the* feet from steering compass.

A cable carrying *14* Amperes *12* feet from standard compass *on the* 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 *every* course in the case of the standard compass, and *1/2* degrees on *every* course in the case of the steering compass.

Benjamin P. Smith Builder's Signature.

Date *20th Sept, 1938*

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.) *The electrical equipment of this vessel has been fitted under special survey. The materials used and the workmanship are good. On completion the equipment was run under working conditions and found satisfactory. This equipment can, in my opinion, be considered suitable for a classed vessel.*

Division finding equipment is fitted.

*Noted
L.Y.
30/9/38*

Total Capacity of Generators *12.5* Kilowatts.

The amount of Fee ... £ *13 : 0 : 2* When applied for, *27 SEP 1938*

Travelling Expenses (if any) £ : : When received, *30/9/38*

Committee's Minutes

Assigned *See F.E. Machy, rpt*

B. Antinson
Surveyor to Lloyd's Register of Shipping.



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Foundation