

REPORT ON ELECTRICAL EQUIPMENT.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

Received at London Office

Date of writing Report 30th Decr, 1937 When handed in at Local Office 8 Jan 1938 Port of Sunderland

No. in Survey held at Sunderland Date, First Survey 5th November Last Survey 4th January 1937/38
Reg. Book. Suppl. (Number of Visits... 15.....)

39670 on the M.V. "POZARICA"

Tons { Gross 1893
Net 838

Built at Sunderland By whom built W. Doxford & Sons, Ltd. Yard No. 634 When built 1938

Owners MacAndrews & Co. Ltd. Port belonging to London

Electric Light Installation fitted by Campbell & Sherwood Ltd. Contract No. 634 When fitted 1938

Is the Vessel fitted for carrying Petroleum in bulk No.

System of Distribution Double wire ✓

Pressure of supply for Lighting 110 volts, Heating 110 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 Yes ✓, 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, Certs. supplied ✓ Have machines over 100 kw. been inspected by the Surveyors during manufacture and testing None fitted ✓

Have certificates for generators under 100 kw. been supplied and approved Manufacturers' Test Certs. only supplied ✓
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 forward ✓, 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 near 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 — 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 micaite 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 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 Single pole circuit breaker with O/L and R/C trips on each generator main, one pole of each connected to equalizer busbar; S.P. switches + D.P. fuses on outgoing circuits

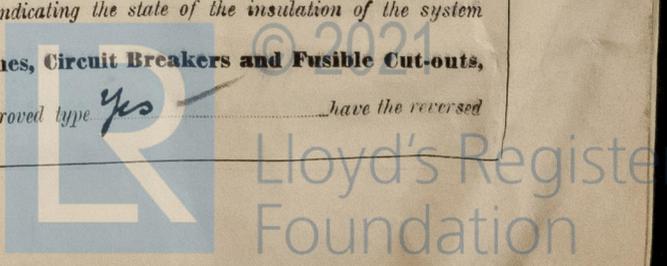
Are turbine driven generators fitted with emergency trip switch as per rule — Are cupboards or compartments containing switchboards composed of fire-resisting material or lined with approved material —

Instruments on main switchboard 2 ✓ ammeters 2 ✓
voltage meters — synchronising device for paralleling purposes. For compound machines is the ammeter connected on the opposite pole to equaliser connection

Yes ✓ 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 E through 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 *Yes* 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* 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* **Fall of Pressure,** state maximum between bus bars and any point of the installation under maximum load *Less than 5.3 volts*

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 laid under machines or floorplates *Yes* if so, are they adequately protected *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. cables run in steel trough on deck.*

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 *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 *Yes* 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* **Secondary Batteries,** are they constructed and fitted as per Rule *Yes* are they ventilated 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* how are the cables led *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*

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 *Home fitted* have certificates for all motors for essential services been supplied and approved *Yes, cuts. herewith* **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 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*

Cuts for running pumps motor cables.

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	20	110	182	650	Single cylinder steam engines		
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	.2	37	.083	182	184	42	V.I.R.	L.C.A.B.
EQUALISER CONNECTIONS	1	.1	19	.083	-	118	21	V.I.R.	L.C.A.B.
AUXILIARY GENERATOR									
EMERGENCY GENERATOR									
ROTARY TRANSFORMER (GENERATOR)									
ENGINE ROOM	1	.01	7	.044	10	31	160	V.I.R.	L.C.A.B.
BOILER ROOM	1	.01	7	.044	10	31	20	V.I.R.	L.C.A.B.
AUXILIARY SWITCHBOARDS									
Stateroom Ltg. S.B. Feed	1	.04	19	.052	50	64	100	V.I.R.	L.C.A.B.
Supp. - Upper Dk. Ltg.	1	.0145	7	.052	26	37	10	V.I.R.	V.I.R. L.C.
Lower Dk. Ltg.	1	.0145	7	.052	26	37	10	V.I.R.	V.I.R. L.C.
Cargo Ltg. S.B. Feed	1	.04	19	.052	42	64	80	V.I.R.	L.C.A.B.
Supp. - Fwd. Cargo Ltg.	1	.0145	7	.052	20	37	150	V.I.R.	V.I.R. L.C.A.B.
Aft Cargo Ltg.	1	.0145	7	.052	20	37	150	V.I.R.	V.I.R. L.C.A.B.
Navigation & Capt's Ltg.	1	.007	7	.036	11	24	180	V.I.R.	L.C.A.B.
ACCOMMODATION S.B. Feed	1	.04	19	.052	64	64	180	V.I.R.	L.C.A.B.
Supp. - Engrs. Accom.	1	.007	7	.036	13	24	100	V.I.R.	V.I.R. L.C.A.B.
Smoke Rm. etc.	1	.007	7	.036	11	24	360	V.I.R.	V.I.R. L.C.A.B.
San. Accom.	1	.007	7	.036	29	31	100	V.I.R.	V.I.R. L.C.A.B.
Supp. - 2 - Blowers at 1 - Reticle	1	.01	7	.036	5	7	50	V.I.R.	V.I.R. L.C.
1 - Toaster	1	.007	7	.036	5	10	10	V.I.R.	V.I.R. L.C.
Lounge Ltg. S.B. Feed	1	.04	19	.052	42	64	100	V.I.R.	V.I.R. L.C.A.B.
Supp. - 3 - Heaters at 1 - Reticle	1	.007	7	.036	5	24	90, 70, 90	V.I.R.	V.I.R. H.R.
WIRELESS	1	.01	7	.044	15	31	180	V.I.R.	L.C.A.B.
SEARCHLIGHT									
MASTHEAD LIGHT	1	.003	3	.036	36	12	300	V.I.R.	L.C. & L.C.A.B.
SIDE LIGHTS	1	.003	3	.036	36	12	60	V.I.R.	L.C.
COMPASS LIGHTS	1	.003	3	.036	14	12	40	V.I.R.	L.C.
STEERING LIGHTS	1	.003	3	.036	36	12	450	V.I.R.	L.C. & L.C.A.B.
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										
3 - Oil Separators each @	3	1	.01	7	.044	25.1	31	140	V.I.R.	L.C.A.B.
WINCHES, AFT										
STEERING GEAR										
(a) MOTOR GENERATOR										
(b) MAIN MOTOR										
WORKSHOP MOTOR	1	1	.007	7	.036	16	24	190	V.I.R.	L.C.A.B.
VENTILATING FANS (REFRIG.)	1	.007	7	.036	11	24	220	V.I.R.	L.C.A.B.	
Supp. - 2 - Fans @	2	1	.003	3	.036	5.5	12	40	V.I.R.	L.C.A.B.
Boiler Rm. Fans S.B. Feed	1	.007	7	.036	13.5	24	220	V.I.R.	L.C.A.B.	
Supp. - Std. boiler fan	1	1	.003	3	.036	8.8	12	50	V.I.R.	L.C.A.B.
Port. boiler fan	1	1	.003	3	.036	4.7	12	100	V.I.R.	L.C.A.B.
Crane & Priming Pump	2	1	.01	7	.044	24/13.5	31	80	V.I.R.	L.C.A.B.

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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.

CAMPBELL & ISHERWOOD, LTD
 PER Thomas Wood

Electrical Engineers.

Date 30th Dec 1937

COMPASSES.

Minimum distance between electric generators or motors and standard compass 80 feet

Minimum distance between electric generators or motors and steering compass 75 feet

The nearest cables to the compasses are as follows:—

A cable carrying .14 Ampères on the ~~feet from~~ standard compass 12 feet from steering compass.

A cable carrying .14 Ampères 12 feet from standard compass on the ~~feet from~~ steering compass.

A cable carrying _____ Ampères _____ 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 every course in the case of the standard compass, and Nil degrees on every course in the case of the steering compass.

WILLIAM DOXFORD & SONS, Limited,

R. Maxwell

Managing Director,

Builder's Signature.

Date 6/1/38

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 installation)

of this vessel has been fitted out under special survey. The materials used and the workmanship are good. On completion the equipment was run under working conditions, the overcurrent and reversed current trips of the circuit breakers were adjusted and checked, the dynamos, governors, main switchboard, switches, fuses cables, motors, heaters and fittings were examined and tested and the insulation resistance of all circuits was measured. This installation is eligible, in my opinion, for a classed vessel and is in accordance with approved plans and in compliance with the Rules. The vessel is equipped with an Echo sounding device and Direction Finding Apparatus.

Total Capacity of Generators 40 Kilowatts.

Noted for 11/1/38

The amount of Fee ... £ 25 : - : { When applied for, 10 JAN 1938

Travelling Expenses (if any) £ : : { When received, 13/1/38

G. Anterson

Surveyor to Lloyd's Register of Shipping.

Committee's Minute TUE 18 JAN 1938

Assigned

See Old No. 32275



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The Surveyors are requested not to write on or below the space for Committee's Minute.