

Rpt. 13.

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No. 6652

# REPORT ON ELECTRICAL EQUIPMENT.

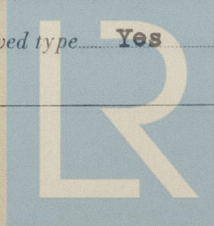
(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

Received at London Office

OCT 1945

Date of writing Report 28th July 1945 When handed in at Local Office 27th July, 1945 Port of MONTREAL, QUE.  
No. in Survey held at MONTREAL, QUE. Date, First Survey 14th May Last Survey 21st July 1945  
Reg. Book. (Number of Visits 10)  
on the SINGLE SCREW STEAMER "CABEDULO" Tons { Gross 3142.34  
Net 1818.16  
Built at Montreal, Que. By whom built Canadian Vickers Ltd. Yard No. 211 When built 1945  
Owners Lloyd Brasileiro (Patrimonio Nacional) Port belonging to RIO DE JANEIRO  
Electric Light Installation fitted by Canadian Vickers Limited Contract No. 211 When fitted 1945  
Is the Vessel fitted for carrying Petroleum in bulk No

System of Distribution Two wire  
Pressure of supply for Lighting 115 volts, Heating - volts, Power 115 volts.  
Direct or Alternating Current, Lighting D.C. Power D.C.  
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 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 Starboard side of Engine Room, 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 Starboard aft bulkhead in Engine Room  
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 Positive Alive Negative Dead 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 Air Circuit Breaker, Triple Pole - 150 Amps - 250 volts with over current and reverse current trips & interlocked equalizer contacts for each Generator - Tandem Knife Switch - Double Pole - Single Throw - Quick break 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 Three ammeters Three volt-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 Earth indicating lamp on each pole 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** 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 **3.2 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 **-** 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 **Lead covered & armoured in machinery spaces - Lead covered in galley, bathrooms and lavatories**

Support and Protection of Cables, state how the cables are supported and protected **Clipped on perforated cable trays and covered with sheet iron cover in places liable to damage**

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 **Yes**

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 **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 **Generators .125 sq.in.**  
**All cables are of the lead cased variety clipped to the Hull by means of brass clips**

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 **-**

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 - in Wheelhouse**

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 not covered by the Rules~~ **No**

are any fittings placed in spaces where inflammable or explosive dust or gases are liable to be present, if so, how are they protected **No**

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 **Yes**

Heating and Cooking Appliances, are they constructed and fitted as per Rule **None**, are air heaters constructed and fitted as per Rule **None**

Searchlight Lamps, No. of **None**, whether fixed or portable **-**, are their fittings as per Rule **-**

Are Lamps, other than searchlight lamps, No. of **None**, 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 **Drip-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 **None** 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 **not applicable** 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**

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 ... ..	Three	15.0	115	136	550	Steam Engines	-	-	
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	.1653	19	.1055	137	162 ✓	120	Vul. India Rubber	Leadsheath
EQUALISER CONNECTIONS ... ..	1	.1653	19	.1055					
AUXILIARY GENERATOR ... ..	-								
EMERGENCY GENERATOR... ..	-								
ROTARY TRANSFORMER { MOTOR ... ..	-								
GENERATOR... ..	-								
ENGINE ROOM ... ..	1	.021	7	.0612	33	45 /	80	" "	Leadsheath armoured
BOILER ROOM ... ..	Fed from Engine Room Distribution Box								
AUXILIARY SWITCHBOARDS ... ..	-								
ACCOMMODATION ... ..									
Forward	1	.00812	7	.0385	8	25 ✓	350	" "	Leadsheath in conduit
Upper Deck Amidship	1	.01288	7	.0486	18	35 ✓	30	" "	Leadsheath
Nav. Bridge Deck	1	.01288	7	.0486	19	35 ✓	30	" "	Leadsheath
Bridge Deck	1	.01288	7	.0486	28	35 ✓	30	" "	Leadsheath
WIRELESS ... ..	1	.03262	7	.0772	18	56 /	130	" "	Leadsheath
SEARCHLIGHT ... ..	-								
MASTHEAD LIGHT ... ..	1	.00321	1	.064	.54	10 ✓	400	" "	Leadsheath in conduit
SIDE LIGHTS ... ..	1	.00321	1	.064	.54	10 ✓	110	" "	Leadsheath armoured
COMPASS LIGHTS ... ..	1	.00321	1	.064	.22	10 ✓	60	" "	Leadsheath
POOP LIGHTS ... ..	1	.01288	7	.0486	15	35 ✓	350	" "	Leadsheath in conduit
CARGO LIGHTS ... ..	1	.00321	1	.064	2.1	10 ✓	80	" "	Leadsheath in conduit
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 ... ..	-									
Refrigerating Mach.	2	1	.06	19	.064	110	135 ✓	160	Varnished Cambric	Leadsheath
Circulating Pumps	2	1	.0028	70	.0076	8.9	10 ✓	100	V.I.R.	Phosphor Bronze Braid

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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.

For CANADIAN VICKERS LIMITED  
*J. Kirkland*  
(J. KIRKLAND) SHIPYARD MANAGER

Electrical Engineers.

Date August 24th, 1945.

#### COMPASSES.

Distance between electric generators or motors and standard compass 50 ft.

Distance between electric generators or motors and steering compass 42 ft.

The nearest cables to the compasses are as follows:—

A cable carrying .036 Ampères 5 feet from standard compass 5 feet from steering compass.

A cable carrying 1.8 Ampères 28 feet from standard compass 22 feet from steering compass.

A cable carrying 18 Ampères 50 feet from standard compass 58 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 W degrees on S W course in the case of the standard compass, and 1 E degrees on N W course in the case of the steering compass.

For CANADIAN VICKERS LIMITED.

*J. Kirkland*  
(J. KIRKLAND) SHIPYARD MANAGER

Builder's Signature.

Date August 24th, 1945.

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. This Electrical Installation has been fitted )

on board this Vessel under Special Survey in accordance with the Approved Plans and Secretary's Letters, and has been satisfactorily tested under full load conditions.

The workmanship and materials are good.

Megger Tests carried out and in order.

Copies of Generator Test Certificates enclosed.

*Notes*

*Run 15.10.45*

Total Capacity of Generators 45 Kilowatts.

The amount of Fee ... \$ 194<sup>00</sup> : When applied for, 10<sup>th</sup> Sept 1945

Travelling Expenses (if any) X Included When received, 19

Committee's Minute TUES. 23 OCT 1945

Assigned See F.E. machy. rpt

*J.S. Morrison*  
Surveyor to Lloyd's Register of Shipping.