

REPORT ON ELECTRICAL EQUIPMENT.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

E11 JUN 1944

Received at London Office

Date of writing Report **14th March, 44** When handed in at Local Office **14th March, 44** Port of **Vancouver, B. C.**
 No. in Survey held at **Vancouver, B. C.** Date, First Survey **4th Feb., 1944** Last Survey **13th March, 19 44**
 Reg. Book. (Number of Visits **12**)
 --- on the **Steel Single Screw Tanker Conversion "WILLOWDALE PARK"** Tons { Gross **7243.01**
 Net **4163.11**
 Built at **Vancouver, B.C.** By whom built **West Coast Shipbuilders, Ltd.** No. **136** When built **1944**
 Owners **Minister of Munitions & Supply of Canada** belonging to **Montreal, P.Q.**
 (Mgrs. - **Park Steamship Co. Ltd.**)
 Electric Light Installation fitted by **West Coast Shipbuilders, Ltd.** Contract No. When fitted **1944**
Homogeneous Cargo of
 Is the Vessel fitted for carrying Petroleum in bulk **Yes**

System of Distribution **Constant Pressure Two-Wire Direct Current**
 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. **No**, 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 **Attached. Also** Have machines over 100 kw. been inspected by the Surveyors during manufacture and testing **Under 100 K.W.**
Ship's Trial Results attached.
 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 Generator Platform on first grating level Starboard Aft.** 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 **Aft end of Generator Platform athwartships.**
 If the generators and main switch board 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 **Same Compartment.**
 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 **Ebony Asbestos** 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 **--** 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 **Yes** 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 **150 Ampere D.P. linked Circuit Breakers on separate panels with overload and reverse current trips, and a three pole isolating switch for each generator. D.P. switches and fuses for 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 **Yes** Instruments on main switchboard **3** ammeters **3** volt-meters
Selector switch on No.2 Generator Voltmeter.
 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 **No.2 Generator Voltmeter Selector Switch wired to give ground readings in addition to Generator and Bus Bar readings, also earth lamps and switch.** 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** **Approved** **Wartime Cables.** Cables: Single, twin, concentric, or multicore, are the cables insulated and protected as per Tables IV, V, X or XI of the Rules. 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 **5.0** 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 **--** 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 **Both** Support and Protection of Cables, state how the cables are supported and protected in accommodation spaces clipped to woodwork or steel structure as per Rule. Main cables above deck supported on substantial fore and aft platform fitted full length of ship at bridge deck level. Cables efficiently clipped on same and well protected. 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 **--** 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 **None except at Junction Boxes** 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 and hardwood collars** Earthing Connections, state what earthing connections are fitted and their respective sectional areas **Lead covered and armoured cables effectively earthed.** 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 **None** 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 **Wheelhouse** **Yes** has each navigation lamp an automatic indicator as per Rule **Yes** Secondary Batteries, are they constructed and fitted as per Rule **(Wireless)** 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 **Cast metal guards.** 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 in magazines and in shaft tunnel (Admiralty Type Magazine Fittings) (A.P.7007E)** how are the cables led **Lead covered and steel armoured cables clipped as per Rule in magazines and shaft tunnel. Degaussing paper insulated cables led through tween deck spaces over cargo tanks. where are the controlling switches situated Outside Compartments.** 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 **None** are air heaters constructed and fitted as per Rule **None** Searchlight Lamps, No. of **1-12"-1000 Watt Metal** **Spigot on either side of flying bridge.** are their fittings as per Rule **Yes** Are 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 **possible.** 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.** 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 **Under 100 B.H.P.** 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 **Telescopic Mast and A.N.D. Booms Bonded to Deck.** 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 filled 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 **None Fitted** 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	3	15	110	136	575	Steam Reciprocating	--	--		
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.	In Circuit.	Rule.				
MAIN GENERATORS Nos. 1, 2	1	.166	19	.105	136	162	42	Rubber	In Conduit	
EQUALISER CONNECTIONS	1	.104	19	.083	-	118	21	"	" "	
AUXILIARY GENERATOR										
Final Distribution Circuits	Mostly.		7	.024	Insulated with either rubber or synthetic resin			Lead covered and lead covered steel armoured.		
ROTARY TRANSFORMER MOTOR GENERATOR										
Blr. and Ltg. D8	1	.020	7	.061	41.0	43	30	Rubber	In Conduit	
ENGINE ROOM Refrigerator	1	.082	19	.074	75	113 ^x	180	Varnished Cambric	Lead Covered & Steel armoured.	
AUXILIARY SWITCHBOARDS										
Degaussing Panel	1	.131	19	.094	65	138	36	Rubber	Lead Covered & Steel armoured.	
Accommodation Bridge D1	1	.020	7	.061	34	41 ^x	30	P.V.C.	Lead Covered	
Accommodation Saloon D2	1	.020	7	.061	26.0	41 ^x	16	P.V.C.	Lead Covered	
Accommodation Engr. House Port D4	1	.020	7	.061	31	41 ^x	152	P.V.C.	Lead Covered & Steel armoured.	
Accommodation Engr. House Star D5	1	.020	7	.061	36	41 ^x	100	P.V.C.	" "	
Accommodation Crew D7	1	.082	19	.074	46	113 ^x	352	Varnished Cambric	" "	
Power Panel P1	1	.020	7	.061	18	43	30	Rubber	In Conduit	
Section Box Ford.	1	.082	19	.074	80.5	113 ^x	340	Varnished Cambric	Lead Covered & Steel armoured.	
Shore Connections	1	.104	19	.083	100	133 ^x	80	Varnished Cambric	" "	
Navigation	1	.008	7	.038	3	23 ^x	370	P.V.C.	" "	
WIRELESS	1	.052	7	.097	30	83 ^x	370	Varnished Cambric	" "	
SEARCHLIGHT	1	.008	7	.038	10	23 ^x	420	P.V.C.	" "	
MASTHEAD LIGHT	1	.003	7	.024	.3	11.5 ^x	280	P.V.C.	" "	
SIDE LIGHTS	1	.003	7	.024	.3	11.5 ^x	40	P.V.C.	" "	
COMPASS LIGHTS	1	.003	7	.024	.3	11.5 ^x	22	P.V.C.	Lead Covered	
POOP LIGHTS										
Main Masthouse	D6	.020	7	.061	24.0	41 ^x	290	P.V.C.	Lead Covered & Steel armoured.	
Foremast House	1	.020	7	.061	20.5	41 ^x	260	P.V.C.	Lead Covered & Steel armoured.	
Auxiliary Cargo Lights	D5	.032	7	.077	10	56 ^x	350	P.V.C.	" "	
Gyro										
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	1	1	.005	7	.030	6.5	16.5 ^x	36	P.V.C.	Lead Covered & Steel armoured.
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										
Eng. Room Ventilating Fans	1	1	.005	7	.030	6.5	16.5 ^x	112	P.V.C.	Lead Covered & Steel armoured.
* American Institute of Electrical Engineers current carrying capacity for twin core cables Table No.10, single core cables by interpolation from Tables Nos. 1 & 2 of Society's Rules.										
* Polyvinyl Chloride Insulated Cables had to be installed in machinery space and on deck in Fore and Aft raised platform, owing to the non-availability of rubber insulated cables.										

* Polyvinyl Chloride Insulated Cables had to be installed in machinery space and on deck in Fore and Aft raised platform, owing to the non-availability of rubber insulated cables.

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

WEST COAST SHIPBUILDERS LTD.

W. M. Lane
General Manager

Electrical Engineers.

Date 14th March, 1944

COMPASSES.

Distance between electric generators or motors and standard compass 19' (Wireless Alternator)

Distance between electric generators or motors and steering compass 16' (" ")

The nearest cables to the compasses are as follows:—

A cable carrying .25 Ampères 9" feet from standard compass 9" feet from steering compass. (Compass Light)

A cable carrying .3 Ampères 1'-4" feet from standard compass 1'-4" feet from steering compass. (Compass Correction Coils)

A cable carrying .3 Ampères 5 feet from standard compass 3 feet from steering compass. (Wheelhouse Light)

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.

WEST COAST SHIPBUILDERS LTD.

W. M. Lane
General Manager

Builder's Signature.

Date 14th March, 1944

Is this installation a duplicate of a previous case Yes If so, state name of vessel S.S. "MOUNT BRUCE PARK" (Vcr. Report No. 6048)

General Remarks (State quality of workmanship, opinions as to class, &c.)

The electrical equipment of this ship has been installed under Special Survey in accordance with the approved plans, New York letters and Society's Rules except as noted hereafter. As rubber insulated cables are not now available in any sizes and Varnished Cambric cables are not available in sizes smaller than No. 3 B & S gauge in this country, Polyvinyl Chloride cables, contrary to Notice No. 1805 have had to be accepted as listed on deck and in machinery spaces. Polyvinyl Chloride insulated cables have been used for machinery space lighting circuits in addition to the feeders mentioned. Special attention was given to the installation of such cables and they are kept at least 1" clear of all steelwork to allow for air circulation.

The paper insulated degaussing cables are led through tween deck spaces and have only been approved in this position as a wartime emergency.

The materials and workmanship are good and the installation has been examined under full working conditions, tested as per Rule and found satisfactory, and in our opinion is eligible to have the Society's Classification without special notation subject to Polyvinyl Chloride insulated cables installed in machinery spaces and above deck being specially examined within two years before the end of March, 1946 and to degaussing cables being removed from tween deck spaces at end of war emergency. Copies of particulars of ship's trials on generators attached. Maker's certificates covering steam auxiliary engines (driving generators) and generators attached. As fitted plan of electrical wiring attached. The electrical equipment has also been surveyed during construction and installation on behalf of Wartime Shipbuilding, Ltd., to ensure that the terms of the specification have been fully complied with and this work has been satisfactorily carried out.

Total Capacity of Generators 45 Kilowatts.

The amount of Fee ... \$125.00 : 15th Mar., 1944

Travelling Expenses (if any) \$ 10.00 : When received. 19

W. G. Donald
Surveyor to Lloyd's Register of Shipping.

Committee's Minute TUES. 13 JUN 1944

Assigned See fe machy vll.



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Foundation