

# REPORT ON ELECTRICAL EQUIPMENT.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

28 APR 1944

Received at London Office

Date of writing Report 10th March, 1944 When handed in at Local Office 10th March, 1944 Port of Vancouver, B. C.  
 No. in Survey held at North Vancouver, B.C. Date, First Survey 2nd Feb., 1944 Last Survey 10th March, 1944  
 Reg. Book. (Number of Visits 10)  
 -- on the Steel Single Screw Steamer "FORT LA HAVE" Tons { Gross 7165.84  
 Net 4241.88  
 Built at North Vancouver, B.C. By whom built Burrard Dry Dock Co., Ltd. Yard No. 202 When built 1944  
 Owners Minister of Munitions & Supply of Canada. Port belonging to  
 Electric Light Installation fitted by Burrard Dry Dock Co. Ltd. Contract No. When fitted 1944  
 Is the Vessel fitted for carrying Petroleum in bulk No

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.  
 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 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 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 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**  
Cables: Single, twin, concentric, or multicore **Single and Twin on High Pressure Multicore on Telephones** are the cables insulated and protected as per Tables IV, V, X or XI of the Rules **Approved Wartime Cables.**  
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 **5.5** 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 **& Conduit.**  
Support and Protection of Cables, state how the cables are supported and protected **Clipped to woodwork in accommodation by brass or galvanized steel clips spaced as per Rule and run in wood casings, elsewhere run in conduit. All cables protected by metal guards where liable to damage.**  
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 cables, conduit and metal trays 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 **12 in number 4.5 Volt Huist Emergency Hand Lamps fitted throughout the Vessel.**  
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.**  
has each navigation lamp an automatic indicator as per Rule **Yes** Secondary Batteries, are they constructed and fitted 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 **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. Russell Stoll No.4521 Explosion Proof Fittings.**  
Cables run in Conduit.  
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 Filament Lamp.** whether fixed or portable **Spigot on either side of Flying Bridge.** are their fittings as per Rule **Yes**  
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 **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 **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 **Heavy Derricks and Telescopic Mast 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 **--** 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.	Ampere.	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.	No. of Pole.	CONDUCTORS.		COMPOSITION OF STRAND.		TOTAL MAXIMUM CURRENT. AMPERES.		Approximate Length. (Lead and Return.) Feet.	Insulated with	HOW PROTECTED
		Total Nominal Area per Pole Sq. Ins.	No.	Diameter.	Circuit.	Rule.				
MAIN GENERATOR	1	1	.166	19	.105	136	162	25	Rubber	In Conduit
EQUALISER CONNECTIONS	1	1	.166	19	.105	-	162	15	"	" "
AUXILIARY GENERATOR										
Final Distribution Circuits Mostly					.024	Insulated with either rubber or synthetic resin lead covered or in conduit.				
ROTARY TRANSFORMER MOTOR										
ENGINE ROOM	1	1	.052	7	.097	47.5	75	40	Rubber	In Conduit
BOILER ROOM										
AUXILIARY SWITCHBOARDS	1	1	.008	7	.038	20	27	6	"	Switchboard
Refrigerator	1	1	.082	19	.074	75	113	200	Varnished Cambric	Lead Covered in Conduit.
Degaussing Panel	1	1	.166	19	.105	65	262	30	Varnished Cambric	Lead Covered
Power Panel P1	1	1	.032	7	.077	33	55	40	Rubber	In Conduit
Accommodation L9	1	1	.052	7	.097	37	83	450	Varnished Cambric	Lead Covered in Conduit.
Aft Deck House L10	1	1	.082	19	.074	35.5	113	500	"	" "
Eng. House Star	1	1	.052	7	.097	39	83	100	"	" "
" " " Port L3	1	1	.052	7	.097	34	83	200	"	" "
" " " Saloon House L4	1	1	.052	7	.097	42.5	83	300	"	" "
" " " Capt. House L5	1	1	.032	7	.077	26.5	56	350	Synthetic Resin	" "
Navigation L6	1	1	.032	7	.077	21	56	450	"	" "
WIRELESS	1	1	.052	7	.097	30	83	400	Varnished Cambric	Lead Covered in Conduit.
SEARCHLIGHT	1	1	.008	7	.038	10	23	450	Synthetic Resin	" "
MASTHEAD LIGHT	1	1	.003	7	.024	.5	11.5	358	"	" "
SIDE LIGHTS	1	1	.003	7	.024	.5	11.5	74	"	Lead Covered
COMPASS LIGHTS	1	1	.003	7	.024	.3	11.5	22	"	" "
POOP LIGHTS										
CARGO LIGHTS	1	1	.052	7	.097	24.8	83	450	Varnished Cambric	Lead Covered in Conduit.
" " " Aft L8	1	1	.032	7	.077	24.4	56	300	Synthetic Resin	" "
Gyro Compass	1	1	.032	7	.077	10	56	400	"	" "
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	1	1	.005	7	.030	6.5	16	12	Rubber	In Conduit
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 FAN	1	1	.005	7	.030	6.5	16	100	Rubber	In Conduit
* 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.										
* These synthetic resin insulated cables (feeders from main switch board) had to be installed in the machinery space due to the non-availability of rubber insulated cables.										

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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

Burrard Dry Dock Company, Limited

*[Signature]*

President

Electrical Engineers.

Date 10th March, 1944

#### COMPASSES.

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

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

The nearest cables to the compasses are as follows:

A cable carrying .3 Ampères 9 inches from standard compass 9 inches from steering compass. (Compass Lights)

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.

Burrard Dry Dock Company, Limited

*[Signature]*

President

Builder's Signature.

Date 10th March, 1944

Is this installation a duplicate of a previous case Yes If so, state name of vessel S.S. "FORT COLUMBIA" (Vancouver Report No. 5942)

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. The material and workmanship are good, and special attention has been given to the installation of synthetic resin insulated cables, and in the machinery spaces they are kept at least 1" clear of all steel work to allow for air circulation. 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. 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.

*noted*  
*[Signature]*

Total Capacity of Generators 45 Kilowatts.

The amount of Fee ... \$ 125.00

When applied for, 8th Mar., 1944

Travelling Expenses (if any) \$ 10.00

When received, 19

*W. J. Donald*  
Surveyor to Lloyd's Register of Shipping.

Committee's Minute THURS 11 MAY 1944

Assigned

*[Signature]*