

# REPORT ON ELECTRICAL EQUIPMENT.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

Received at London Office

21 JAN 1944

Date of writing Report 23rd Nov., 1943 When handed in at Local Office 23rd Nov., 1943 Port of Vancouver, B. C.  
 No. in Survey held at Vancouver, B. C. Date, First Survey 22nd Sept., 1943 Last Survey 22nd Nov., 1943  
 Reg. Book. (Number of Visits 7)  
 on the Steel Single Screw Steamer S.S. "FORT ORLEANS" Tons { Gross 7165.78  
 Net 4249.51  
 Built at Vancouver, B. C. By whom built Burrard Dry Dock Co. (South Ltd.) Yard No. 191 When built 1943  
 Owners Minister of Munitions and Supply of Canada. Port belonging to  
 Electric Light Installation fitted by Burrard Dry Dock Co. Ltd. Contract No. When fitted 1943  
 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. 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 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 voltmeters

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

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



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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 on telephones, 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 **Lead Covered and 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 Bulb 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.** how are the cables led **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, are they fitted 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.	Amperes.	Revs. per Min.		Fuel Used.	Flash Point of Fuel.
MAIN	1	15	110	136	575	Steam Reciprocating	--	--
AUXILIARY								
EMERGENCY								
ROTARY TRANSFORMER								

GENERATOR, LIGHTING AND HEATING CONDUCTORS.

DESCRIPTION	CONDUCTORS		COMPOSITION OF STRANDS		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 GENERATOR	1	.166	19	.105	136	162	25	Rubber	In Conduit
EQUALISER CONNECTIONS	1	.166	19	.105	--	162	25	"	"
AUXILIARY GENERATOR									
Final Distribution				.024					Insulated with either rubber or synthetic resin lead covered or in conduit.
ROTARY TRANSFORMER MOTOR									
ENGINE ROOM	1	.052	7	.097	47.5	75	40	Rubber	In Conduit
BOILER ROOM									
AUXILIARY SWITCHBOARDS	1	.008	7	.038	20	27	6	"	Switchboard Wiring.
Refrigerator	1	.082	19	.074	75	166	200	Varnished Cambric	Lead Covered in Conduit.
Degaussing Panel	1	.166	19	.105	65	162	30	Varnished Cambric	In Conduit.
Power Panel	1	.032	7	.077	33	55	40	Rubber	In Conduit.
Accommodation	1	.052	7	.097	37	122	450	Varnished Cambric	Lead Covered in Conduit.
Accom. - Aft	L9								
Deck House	L10				35.5	166	500	"	"
Engrs. House Star.	L11				39	122	100	"	"
Accommodation	L2				34	122	200	"	"
Port	L3				42.5	122	300	"	"
Saloon	L4				26.5	55	350	Synthetic Resin.	"
House	L5				21	55	450	"	"
Navigation	L6				30	122	400	Varnished Cambric	Lead Covered in Conduit.
WIRELESS					10	27	450	Synthetic Resin.	"
SEARCHLIGHT					.5	10	358	"	"
MASTHEAD LIGHT					.5	10	74	"	Lead Covered
SIDE LIGHTS					.3	10	22	"	"
COMPASS LIGHTS									
POOP LIGHTS									
CARGO LIGHTS									
Forward	L7				24.8	122	450	Varnished Cambric	Lead Covered in Conduit.
Aft	L8				24.4	55	300	Synthetic Resin	"
Cyco Compass					10	55	400	"	"

MOTOR CONDUCTORS.

DESCRIPTION	No. of Motors.	CONDUCTORS		COMPOSITION OF STRANDS		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	1	1	.005	7	.030	6.5	16	100	Rubber	In Conduit
VENTILATING FAN										

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 23rd Nov., 1943

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 feet 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 23rd Nov., 1943

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. 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 Merchant Shipping, Ltd., to ensure that the terms of the specification have been fully complied with and this work has been satisfactorily carried out.

*Noted*  
*L.F.*  
26/1/44

Total Capacity of Generators 45 Kilowatts.

The amount of Fee ... \$125.00

When applied for, 22 Nov. 43

Travelling Expenses (if any) \$ 10.00

When received, 19

*[Signature]*  
Surveyor to Lloyd's Register of Shipping.

Committee's Minute FRI. 28 JAN 1944

Assigned See fe machs rll.

Im-4-42.—Transfer. Printed in U.S.A.  
(The Surveyors are requested not to write on or below the space for Committee's Minute)



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