

REPORT ON ELECTRICAL EQUIPMENT.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

Received at London Office **7 JUN 1943**

Date of writing Report **14th April, 1943** When handed in at Local Office **14th April, 1943** Port of **Vancouver, B. C.**
 No. in Survey held at **Vancouver, B. C.** Date, First Survey **11th Mar. 1943** Last Survey **13th April, 1943**
 Reg. Book. (Number of Visits **8**)
 on the **Steel Single Screw Steamer "FORT ASH"** Tons **Gross 7131.07**
Net 4245.02
 Built at **North Vancouver, B.C.** By whom built **Burrard Dry Dock Co. Ltd.** Yard No. **174** When built **1943**
 Owners **Minister of Munitions & 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 **No**, 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 Ship's Trial Results attached.**

Have machines over 100 kw. been inspected by the Surveyors during manufacture and testing **Under 100 K.W.**

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 **Centre of Engine Room Starboard side**, 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 Engine Room Starboard side**

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 **4° F.**, 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 **Double pole linked switch with a fuse on each pole for each generator and a D.P.D.T. linked selector switch with a fuse on each pole for each outgoing circuit.**

Are turbine driven generators fitted with emergency trip switch as per rule **--** Are cupboards or compartments containing switchboards composed of

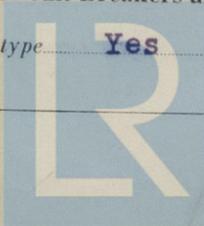
fire-resisting material or lined with approved material **Yes** Instruments on main switchboard **2** ammeters **2** volt-

meters **--** synchronising device for paralleling purposes. For compound machines is the ammeter connected on the opposite pole to equaliser connection

No equaliser connections fitted Earth Testing, state what means are provided at the main switchboard for indicating the state of the insulation of the system

Positive and negative earth lamps with switches. 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 **Not fitted** Joint Boxes, Section and Distribution Boards, is the construction, protection, insulation, material, and position of these as per rule **Yes**

Cables: **Single & Twin** 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 **Yes** Fall of Pressure, state maximum between bus bars and any point of the installation under maximum load **4 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 **--**, 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 & Conduit.**

Support and Protection of Cables, state how the cables are supported and protected **Clipped to woodwork in accommodation by brass 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 **--**

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 **Not fitted**

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 **--**

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 around fittings.**

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 **Yes**, are air heaters constructed and fitted as per Rule **None fitted**

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

Arc 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 **Where 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.**

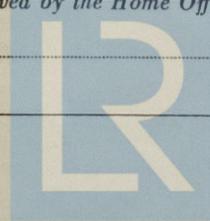
if not of this type, state distance of the combustible material horizontally or vertically above the motors **--** and **--**

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 **None fitted**

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**



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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 ...	Two	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 No.1	1	.2	37	.083	136	184	46	Rubber Insulated	Lead Covered	
" " No.2	1	.2	37	.083	136	184	30	" "	" "	
EQUALISER CONNECTIONS										
AUXILIARY GENERATOR ...										
EMERGENCY GENERATOR...										
ROTARY MOTOR TRANSFORMER GENERATOR...										
ENGINE ROOM & Blr. Rm. Lighting D8	1	.032	7	.077	20	55	50	" "	Double Braided in Conduit	
BOILER ROOM										
AUXILIARY SWITCHBOARDS										
Sec-Boxes (D D D)	1	.104	19	.083	70	118	280	" "	" "	
" " S(D D D D)	1	.052	7	.097	74.5	75	86	" "	" "	
2 4 5 6 7										
Degaussing Panel	1	.166	19	.105	65	162	60	" "	" "	
Distribution Box	1	.032	7	.077	8.9	55	56	" "	" "	
ACCOMMODATION Engrs. D10	1	.032	7	.077	23	55	4	" "	" "	
" Crew Aft D7	1	.032	7	.077	24	55	338	" "	" "	
" Saloon D2	1	.032	7	.077	22	55	4	" "	" "	
" Cap't. & Bridge D1	1	.032	7	.077	20	55	58	" "	Lead Covered	
WIRELESS Navigation	1	.052	7	.097	22.5	75	364	" "	Double Braided in Conduit & Lead Covered.	
SECRET LIGHT	1	.0081	7	.038	2.5	27	384	" "	" "	
MASTHEAD LIGHT	1	.0032	7	.024	.3	10	358	" "	Double Braided in Conduit	
SIDE LIGHTS	1	.0032	7	.024	.6	10	74	" "	Lead Covered.	
COMPASS LIGHTS	1	.0032	7	.024	.2	10	44	" "	" "	
Cargo Lights Aft D6	1	.032	7	.077	11.5	55	180	" "	Double Braided in Conduit.	
Amidships D5	1	.032	7	.077	16	55	4	" "	" "	
" " D3	1	.032	7	.077	28	55	186	" "	" "	
Refrig. Dist. D9	1	.020	7	.061	23.5	43	320	" "	" "	

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										
Refrig. CIRC. SEA WATER PUMPS	1	1	.005	7	.030	3	17	480	Rubber Insulated	Double Braided in Conduit
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	1	1	.003	7	.024	2.0	10	20	Rubber Insulated	Double Braided in Conduit
Refrig. Motor	1	1	.008	7	.038	16	27	20	" "	" "
Eng. Room Fan	1	1	.008	7	.038	8.9	27	100	" "	" "



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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 14th April, 1943

COMPASSES.

Distance between electric generators or motors and standard compass 25 feet

Distance between electric generators or motors and steering compass 20 feet

The nearest cables to the compasses are as follows:—

A cable carrying .20 Ampères 1' feet from standard compass 1' feet from steering compass.

A cable carrying .35 Ampères 5' feet from standard compass 3.5' feet from steering compass.

A cable carrying 1.25 Ampères 9.5' feet from standard compass 6' 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 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 14th April, 1943

Is this installation a duplicate of a previous case Yes If so, state name of vessel S.S. VFORT ST. JAMES" (Vancouver Report No. 5718)

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.H.
9/6/43

Total Capacity of Generators 30 Kilowatts.

The amount of Fee ... £ \$125.00 : When applied for, 13th April/43
Travelling Expenses (if any) £ \$ 10.00 : When received, 19

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

Committee's Minute FRI, 11 JUN 1943

Assigned *See L. E. Mackay Report*