

REPORT ON ELECTRICAL EQUIPMENT.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

Received at London Office

Date of writing Report 17th Feb. 1943 When handed in at Local Office 17th Feb. 1943 Port of Vancouver, B. C.

No. in Survey held at Vancouver, B.C. Date, First Survey 9th Jan. Last Survey 15th Febrary 1943
Reg. Book. (Number of Visits 11)

-- on the Steel Single Screw Steamer "FORT STAGER" Tons { Gross 7131.76
Net 4244.31

Built at Vancouver, B.C. By whom built West Coast Shipbuilders Ltd No. 114 When built 1943

Owners The Minister of Munitions & Supply of Canada Port belonging to --

Electric Light Installation fitted by West Coast Shipbuilders, 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 Yes

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 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 20C, 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 Earth Testing, state what means are provided at the main switchboard for indicating the state of the insulation of the system

fitted Positive and negative earth lamps with switches Switches, Circuit Breakers and Fusible Cut-outs,

Yes are the fusible cutouts of an approved type Yes have the reversed

do these comply with the requirements of the Rules Yes



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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, concentric, or multicore **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 spaces 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.**

--, 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 none**

Heating and Cooking Appliances, are they constructed and fitted as per Rule **Yes**, are air heaters constructed and fitted as per Rule **fitted**

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 **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 **under 100 BHP** 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** 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 ...	Two	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 GENERATOR No. 1 Fwd	1	.15	37	.072	136	152	46	Rubber Insulated	Lead covered in Conduit
" " No. 2 Aft	1	.15	37	.072	136	152	30	" "	" "
AUXILIARY GENERATOR ...									
EMERGENCY GENERATOR...									
ROTARY TRANSFORMER (MOTOR) GENERATOR...									
ENGINE ROOM Lighting D8	1	.032	7	.077	20	55	50	" "	Double Braided in Conduit
BOILER ROOM ...									
AUXILIARY SWITCHBOARDS ...									
Sect. Box 8 (D1, D2, D3)	1	.104	19	.083	66	118	280	" "	" "
" " 8 (D4, D5, D6, D7)	1	.065	19	.066	75.5	87	86	" "	" "
Degaussing Panel	1	.131	19	.094	65	138	50	" "	" "
Dist. Box D10	1	.032	7	.077	8.9	55	48	" "	" "
ACCOMMODATION Engr. D4	1	.032	7	.077	23.0	55	4	" "	" "
" Crew Aft D7	1	.032	7	.077	25.0	55	338	" "	" "
" Saloon D2	1	.032	7	.077	18.0	55	4	" "	" "
" Cap't & Bridge	1	.032	7	.077	20.0	55	98	" "	Double Braided in Conduit & Lead Covered
WIRELESS ...	1	.052	7	.097	22.5	75	336	" "	" "
Navigation ...	1	.0081	7	.038	2.5	27	370	" "	" "
MASTHEAD LIGHT ...	1	.0032	7	.024	.3	10	300	" "	Double Braided in Conduit
SIDE LIGHTS ...	1	.0032	7	.024	.6	10	80	" "	Lead Covered
COMPASS LIGHTS ...	1	.0032	7	.024	.2	10	44	" "	" "
Cargo Aft D6	1	.032	7	.077	11.5	55	180	" "	Double Braided in Conduit
Amidships D5	1	.032	7	.077	16.0	55	4	" "	" "
Fore D3	1	.032	7	.077	28.0	55	200	" "	" "
Refrig. Dist. D9	1	.020	7	.061	23.5	43	320	" "	" "

MOTOR CONDUCTORS.

DESCRIPTION	CONDUCTORS.		COMPOSITION OF STRAND.		TOTAL MAXIMUM CURRENT. AMPERES.		Approximate Length. (Lead and Return.) Feet.	Insulated with	HOW PROTECTED
	No. of Motors.	No. per Pole.	Total Nominal Area per Pole - Sq. Ins.	No.	Diameter.	In Circuit.			
BALLAST PUMP ...									
MAIN BILGE LINE PUMPS ...									
GENERAL SERVICE PUMP ...									
EMERGENCY BILGE PUMP ...									
SANITARY PUMP ...									
FRESH WATER PUMPS...	1	1	.005	7	.030	3.4	16	470	Rubber Insulated Double Braided in Conduit
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	.005	7	.030	2.0	16	16	Rubber Insulated Double Braided in Conduit
Refrig. Motor	1	1	.008	7	.038	16.0	27	10	" "
Eng. Room Fan	1	1	.008	7	.038	8.9	27	112	" "

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. Lara
General Manager

Electrical Engineers.

Date 17th Feb. 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 " 5' " 3.5' "

A cable carrying 1.25 Ampères 9.5' " 6' "

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 courses in the case of the standard compass, and Nil degrees on All courses in the case of the steering compass.

WEST COAST SHIPBUILDERS LTD.

W. M. Lara
General Manager

Builder's Signature.

Date 17th Feb. 1943

Is this installation a duplicate of a previous case Yes If so, state name of vessel S.S. "FORT 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
F.P.
13/4/43.

Total Capacity of Generators 30 Kilowatts.

The amount of Fee ... \$125.00 : When applied for, 17th Feb. 43

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

Committee's Minute FRI. 16 APR 1943

Assigned See FE. machy rpl.

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

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(The Surveyors are requested not to write on or below the space for Committee's Minute.)



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