

# REPORT ON ELECTRICAL EQUIPMENT.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

Received at London Office

2 DEC 1942

Date of writing Report 19th Sept. 1942 When handed in at Local Office 19th Sept. 1942 Port of Vancouver, B. C.  
 No. in Survey held at Victoria, B. C. Date, First Survey 10th July, 1942 Last Survey 12th Sept. 1942  
 Reg. Book. (Number of Visits 21)  
 -- on the Steel Single Screw Steamer "FORT LIARD" Tons { Gross 7131.2  
 Net 4262.91  
 Built at Victoria, B. C. By whom built Victoria Machinery Depot Co. Ltd. Yard No. 22 When built 1942  
 Owners Minister of Munitions & Supply of Canada Port belonging to --  
 Electric Light Installation fitted by Victoria Machinery Depot Co. Ltd. Contract No. -- When fitted 1942  
 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- See General Remarks. 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, lower platform, 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 bed plates 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, lower platform 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 2° 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 -- 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 & Negative earth lamps and 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**

**Single & Twin core** Cables: Single, twin, concentric, or multicore **Twin core** 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 **--** 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 in 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 **Yes - in 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**

are any fittings placed in spaces where inflammable or explosive dust or gases are liable to be present, if so, how are they protected **None** 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 **Not 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 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 **Not 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	115	130	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.	Circuit.	Rule.			
MAIN GENERATOR	No. 1 1	.15	37	.072	130	152	74	Rubber Insulated	Lead covered
EQUALISER CONNECTIONS	No. 2 1	.15	37	.072	130	152	36	do do	do do
AUXILIARY GENERATOR									
EMERGENCY GENERATOR									
ROTARY TRANSFORMER									
MOTOR									
ENGINE ROOM	1	.032	7	.077	20	55	40	V.I.R.	Double Braided in Conduit
BOILER ROOM									
AUXILIARY SWITCHBOARDS									
Seat. Box S <sub>1</sub> (D.D.D.)	1	.104	19	.083	66	118	270	do	do do
" " S <sub>2</sub> (D.D.D.)	1	.052	7	.097	71.5	75	280	do	do do
" " D10 (Fan)	1	.007	7	.036	8.9	24	40	do	do do
ACCOMMODATION									
Engrs. D4	1	.032	7	.077	20	55	4	do	do do
" Crew Lift	D7 1	.032	7	.077	24	55	350	do	do do
" Saloon	D2 1	.032	7	.077	18	55	4	do	do do
" Cap't. & Bridge	D1 1	.032	7	.077	20	55	60	do	Double Braided in Conduit & Lead Covered.
WIRELESS									
Navigation	1	.052	7	.097	22.5	75	320	do	" "
" "	1	.0081	7	.038	2.5	27	320	do	do do
MASTHEAD LIGHT	1	.0032	7	.024	.3	10	260	do	Double Braided in Conduit.
SIDE LIGHTS	1	.0032	7	.024	.6	10	60	do	Lead Covered
COMPASS LIGHTS	1	.0032	7	.024	.3	10	30	do	do do
Cargo Lights	Aft D6 1	.032	7	.077	11.5	55	200	do	Double Braided in Conduit.
CARGO LIGHTS	Amid. D5 1	.032	7	.077	16	55	4	do	do do
ARC LAMPS	For'd. D3 1	.032	7	.077	28	55	200	do	do do
Refrig. Dist. D9	1	.020	7	.061	20.5	43	280	do	do do

## 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	1	1	.005	7	.030	3.4	16	400	V.I.R.	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	Eng. Rm. 1	1	.008	7	.038	8.9	27	84	V.I.R.	Double Braided in Conduit
" "	1	1	.003	7	.024	2	10	20	do	do do
Refrig. Motor	1	1	.008	7	.038	16	27	20	do	do do



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 true and correct statement of the facts as stated by the Electrical Engineers.

PER

*G. Coupar*

Electrical Engineers.

Date 29th Sept. 1942

#### 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 .3 Ampères 1 feet from standard compass 1.5 feet from steering compass.

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

A cable carrying 1.36 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.

Victoria Machinery Depot Co., Ltd.

*G. Coupar*

Builder's Signature.

Date 29th Sept. 1942

Is this installation a duplicate of a previous case Yes If so, state name of vessel S.S. "FORT CAMOSUN"

(Ver. Report No. 5760)

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 materials 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.

Total Capacity of Generators 30 Kilowatts.

The amount of Fee ... £125.00 : 15th Sept. 42

Travelling Expenses (if any) £25.00 : When received.

Committee's Minute TUE 8 DEC 1942

Assigned

See Ver JE 5009

Surveyor to Lloyd's Register of Shipping.



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Foundation