

27,28

Rpt. 13.

No. 5949

# REPORT ON ELECTRICAL EQUIPMENT.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

5-NOV 1943

Received at London Office

Date of writing Report **12th Aug., 1943** When handed in at Local Office **12th Aug., 1943** Port of **Vancouver, B. C.**

No. in Survey held at **Vancouver, B. C.** Date, First Survey **5th June, 1943** Last Survey **17th July, 1943**

Reg. Book. (Number of Visits **13**)

on the **Steel Single Screw Steamer "FORT ASTORIA"** Tons { Gross **7188.56**  
Net **4291.30**

Built at **Vancouver, B.C.** By whom built **West Coast Shipbuilders, Ltd.** No. **123** When built **1943**

Owners **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**

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LAMBLY

Plans

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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 **4 C.**, 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

**150 Ampere D.P. 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



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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 **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. **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 **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 (Degaussing)** Cable Rans, 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 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 Hult 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.** are they fixed or portable **Spigot on either side of flying bridge** are their fittings as per Rule **Yes**

Are 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 **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** Control Gear and Resistances, are the generator field and motor speed regulators, starters and controllers constructed and fitted as per Rule **Yes** **B.H.P.** Lightning Conductors, where lightning conductors are required, are these fitted as per Rule **--** 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. |                         | Fuel Used.                                     | Flash Point of Fuel. |  |  |
| MAIN                             | 3      | 15         | 110    | 136      | 575 Steam Reciprocating | --   | --                   |  |  |
| AUXILIARY                        |        |            |        |          |                         |  |                      |  |  |
| EMERGENCY                        |        |            |        |          |                         |  |                      |  |  |
| ROTARY TRANSFORMER               |        |            |        |          |                         |  |                      |  |  |

| DESCRIPTION.           | No. of Poles. | Total Nominal Area per Pole Sq. Ins. | COMPOSITION OF STRAND. |           | TOTAL MAXIMUM CURRENT. AMPERES. |       | Approximate Length. (Lead and Return.) Feet. | Insulated with | HOW PROTECTED      |
|------------------------|---------------|--------------------------------------|------------------------|-----------|---------------------------------|-------|--|----------------|--------------------|
|                        |               |                                      | No.                    | Diameter. | Circuit.                        | Rule. |  |                |                    |
| MAIN GENERATOR         | 1             | .166                                 | 19                     | .105      | 136                             | 162   | 22   | Rubber         | In Conduit         |
| EQUALISER CONNECTIONS  | 1             | .0828                                | 19                     | .074      | -                               | 102   | 18   | "              | "                  |
| AUXILIARY GENERATOR    |               |                                      |                        |           |                                 |       |  |                |                    |
| EMERGENCY GENERATOR    |               |                                      |                        |           |                                 |       |  |                |                    |
| ROTARY TRANSFORMER     |               |                                      |                        |           |                                 |       |  |                |                    |
| ENGINE ROOM            | 1             | .052                                 | 7                      | .097      | 50.5                            | 75    | 30   | "              | "                  |
| BOILER ROOM            |               |                                      |                        |           |                                 |       |  |                |                    |
| AUXILIARY SWITCHBOARDS | 1             | .008                                 | 7                      | .038      | 20                              | 27    | 6  | "              | Switchboard wiring |
| Refrigerator           | 1             | .082                                 | 19                     | .074      | 75                              | 102   | 200  | "              | In conduit         |
| Degaussing Panel       | 1             | .131                                 | 19                     | .094      | 65                              | 138   | 30   | "              | "                  |
| Power Panel P1         | 1             | .032                                 | 7                      | .077      | 13                              | 55    | 40   | "              | "                  |
| Accommodation          | 1             | .052                                 | 7                      | .097      | 17                              | 75    | 336  | "              | "                  |
| Crew Accommodation     | 1             | .082                                 | 19                     | .074      | 43.2                            | 102   | 390  | "              | "                  |
| Engr. House Star       | 1             | .052                                 | 7                      | .097      | 43.5                            | 75    | 86   | "              | "                  |
| Port                   | 1             | .052                                 | 7                      | .097      | 39                              | 75    | 116  | "              | "                  |
| Saloon                 | 1             | .052                                 | 7                      | .097      | 39.5                            | 75    | 288  | "              | "                  |
| House                  | 1             | .032                                 | 7                      | .077      | 22                              | 55    | 300  | "              | "                  |
| House                  | 1             | .032                                 | 7                      | .077      | 22                              | 55    | 300  | "              | "                  |
| Navigation             | 1             | .032                                 | 7                      | .077      | 17.5                            | 55    | 300  | "              | "                  |
| WIRELESS               | 1             | .052                                 | 7                      | .097      | 30                              | 75    | 450  | "              | "                  |
| SEARCHLIGHT            | 1             | .0081                                | 7                      | .038      | 10                              | 27    | 450  | "              | "                  |
| MASTHEAD LIGHT         | 1             | .003                                 | 7                      | .024      | .45                             | 10    | 300  | "              | "                  |
| SIDE LIGHTS            | 1             | .003                                 | 7                      | .024      | .45                             | 10    | 100  | "              | Lead covered       |
| COMPASS LIGHTS         | 1             | .003                                 | 7                      | .024      | .3                              | 10    | 22   | "              | In Conduit         |
| POOP LIGHTS            |               |                                      |                        |           |                                 |       |  |                |                    |
| CARGO LIGHT            | 1             | .052                                 | 7                      | .097      | 30.5                            | 75    | 450  | "              | "                  |
| For'd.                 | 1             | .032                                 | 7                      | .077      | 14                              | 55    | 230  | "              | "                  |
| Aft                    | 1             | .032                                 | 7                      | .077      | 14                              | 55    | 230  | "              | "                  |
| Gyro Compass           | 1             | .020                                 | 7                      | .061      | 10                              | 43    | 295  | "              | "                  |

| 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    | 36   | 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    | 112  | "              | "             |
| 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

WEST COAST SHIPBUILDERS LTD.

*W. M. Lam*  
General Manager

Electrical Engineers.

Date 12th Aug., 1943

COMPASSES.

Distance between electric generators or motors and standard compass 19 feet (Gyro Compass)

Distance between electric generators or motors and steering compass 10 feet (Gyro Compass)

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.

WEST COAST SHIPBUILDERS LTD.

*W. M. Lam*  
General Manager

Builder's Signature.

Date 12th Aug., 1943

Is this installation a duplicate of a previous case Yes, with so, state name of vessel S.S. "FORT COLUMBIA" points of difference. (Ver. 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  
20/11/43*

Total Capacity of Generators 45 Kilowatts.

The amount of Fee ... £\$125.00

Travelling Expenses (if any) £\$ 10.00

When applied for, 30<sup>th</sup> Aug. 1943  
When received, 19

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

Committee's Minute TUES. 7 DEC 1943

Assigned See fe machy etc

1m-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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