

# REPORT ON ELECTRICAL EQUIPMENT.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

3 - NOV 1942

Received at London Office

Date of writing Report 29 AUGUST 1942 When handed in at Local Office 29 AUGUST 1942 Port of VANCOUVER, B.C.No. in Survey held at VICTORIA, B.C. Date, First Survey 3-JUNE Last Survey 6-AUGUST 1942Reg. Book. (Number of Visits 18)on the STEEL SINGLE SCREW STEAMER, "FORT DOUGLAS" Tons { Gross 7128.82 Net 4260.89Built at VICTORIA, B.C. By whom built VICTORIA MACHINERY DEPOT CO. LTD. Yard No. 21 When built 1942Owners MINISTER OF MUNITIONS & SUPPLY OF CANADA Port belonging to -Electric Light Installation fitted by VICTORIA MACHINERY DEPOT CO. LTD. Contract No. - When fitted 1942Is the Vessel fitted for carrying Petroleum in bulk NOSystem 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 YESGenerators, do they comply with the requirements regarding temperature rise YES, are they compound wound YESare 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 YESHave 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 YESAre the lubricating arrangements of the generators as per Rule YESPosition of Generators CENTRE OF ENGINE ROOM - STARBOARD SIDE - LOWER PLATFORM., is the ventilation in way of the generators satisfactory YESare they clear of all inflammable material YES if situated near unprotectedwoodwork 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 YESEarthing, are the bedplates and frames of the generating plant efficiently earthed YES are the prime movers and their respective generators in metallic contact YESMain Switch Boards, where placed AFT. END OF ENGINE ROOM, STARBOARD SIDE, AFT. WARDROOMS - LOWER PLATFORM. 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 YESif 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 ASBESTOSis all insulation of high dielectric strength and of permanently high insulation resistance YES is it of an approved type YESif 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 YESand is the frame effectively earthed YES Are the fittings as per Rule regarding:—spacing or shielding of live parts YESaccessibility of all parts YES absence of fuses on back of board YES temperature rise of omnibus bars 2°Findividual fuses to voltmeter, pilot or earth lamp YES are moving parts of switches alive in the "off" position NOare all screws and nuts securing connections effectively locked YES are any fuses fitted on the live side of switches NOMain 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.Earth Testing, state what means are provided at the main switchboard for indicating the state of the insulation of the system CONNECTIONS FITTEDPOSITIVE & NEGATIVE EARTH LAMPS & 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, concentric, or multicore SINGLE or TWIN CORE 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 - 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 & 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 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 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 ...	<u>Two</u>	<u>15</u>	<u>115</u>	<u>130</u>	<u>575</u>	<u>STEAM RECIPROCATING.</u>			
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 ... <u>Nº 1</u>	<u>1</u>	<u>.15</u>	<u>37</u>	<u>.072</u>	<u>130</u>	<u>152</u>	<u>46</u>	<u>RUBBER INSULATED</u>	<u>LEAD COVERED.</u>
<u>Equaliser Connections Nº 2</u>	<u>1</u>	<u>.15</u>	<u>37</u>	<u>.072</u>	<u>130</u>	<u>152</u>	<u>30</u>	<u>do do</u>	<u>do do</u>
AUXILIARY GENERATOR ...									
EMERGENCY GENERATOR...									
ROTARY TRANSFORMER { MOTOR GENERATOR...									
ENGINE ROOM <u>Barry "D8"</u>	<u>1</u>	<u>.032</u>	<u>7</u>	<u>.077</u>	<u>20</u>	<u>55</u>	<u>40</u>	<u>V.I.R.</u>	<u>DOUBLE BRAIDED IN CONDUIT</u>
BOILER ROOM ...									
AUXILIARY SWITCHBOARDS ...									
<u>Sheet Box "S1" (D1-D2-D3)</u>	<u>1</u>	<u>.104</u>	<u>7</u>	<u>.137</u>	<u>59</u>	<u>118</u>	<u>270</u>	<u>Do</u>	<u>Do Do</u>
<u>Do "S2" (D4-D5-D6-D7)</u>	<u>1</u>	<u>.052</u>	<u>7</u>	<u>.097</u>	<u>73</u>	<u>75</u>	<u>80</u>	<u>Do</u>	<u>Do Do</u>
<u>Do "D10" (ER-FAN)</u>	<u>1</u>	<u>.020</u>	<u>7</u>	<u>.061</u>	<u>8.9</u>	<u>44</u>	<u>20</u>	<u>Do</u>	<u>Do Do</u>
ACCOMMODATION <u>Engins. "D4"</u>	<u>1</u>	<u>.032</u>	<u>7</u>	<u>.077</u>	<u>20</u>	<u>55</u>	<u>4</u>	<u>Do</u>	<u>Do Do</u>
<u>"CREW AFT. "D7"</u>	<u>1</u>	<u>.032</u>	<u>7</u>	<u>.077</u>	<u>25</u>	<u>55</u>	<u>350</u>	<u>Do</u>	<u>Do Do</u>
<u>"SALOON "D2"</u>	<u>1</u>	<u>.032</u>	<u>7</u>	<u>.077</u>	<u>17</u>	<u>55</u>	<u>4</u>	<u>Do</u>	<u>Do Do</u>
<u>"CAPT. BRIDGE "D1"</u>	<u>1</u>	<u>.032</u>	<u>7</u>	<u>.077</u>	<u>20</u>	<u>55</u>	<u>60</u>	<u>Do</u>	<u>Do Do</u>
WIRELESS ...	<u>1</u>	<u>.052</u>	<u>7</u>	<u>.097</u>	<u>22.5</u>	<u>75</u>	<u>320</u>	<u>Do</u>	<u>Do Do</u>
<u>Navigation</u>	<u>1</u>	<u>.0081</u>	<u>7</u>	<u>.038</u>	<u>2.5</u>	<u>27</u>	<u>320</u>	<u>Do</u>	<u>Do Do</u>
MASTHEAD LIGHT ...	<u>1</u>	<u>.0032</u>	<u>7</u>	<u>.024</u>	<u>.3</u>	<u>10</u>	<u>350</u>	<u>Do</u>	<u>Do Do</u>
SIDE LIGHTS ...	<u>1</u>	<u>.0032</u>	<u>7</u>	<u>.024</u>	<u>.6</u>	<u>10</u>	<u>60</u>	<u>Do</u>	<u>Do Do</u>
COMPASS LIGHTS ...	<u>1</u>	<u>.0032</u>	<u>7</u>	<u>.024</u>	<u>.3</u>	<u>10</u>	<u>30</u>	<u>Do</u>	<u>Do Do</u>
<u>Cargo Lights Aft "D6"</u>	<u>1</u>	<u>.032</u>	<u>7</u>	<u>.077</u>	<u>13</u>	<u>55</u>	<u>200</u>	<u>Do</u>	<u>Do Do</u>
<u>CARGO LIGHTS <u>Amid. "D5"</u></u>	<u>1</u>	<u>.032</u>	<u>7</u>	<u>.077</u>	<u>15</u>	<u>55</u>	<u>4</u>	<u>Do</u>	<u>Do Do</u>
<u>Do <u>Forward "D3"</u></u>	<u>1</u>	<u>.032</u>	<u>7</u>	<u>.077</u>	<u>22</u>	<u>55</u>	<u>200</u>	<u>Do</u>	<u>Do Do</u>
<u>REFRIG. DIST. "D9"</u>	<u>1</u>	<u>.020</u>	<u>7</u>	<u>.061</u>	<u>23.5</u>	<u>44</u>	<u>280</u>	<u>Do</u>	<u>Do Do</u>

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 ...										
<u>REFRIGERATION CIRC. SEA WATER PUMPS</u>	<u>1</u>	<u>1</u>	<u>.0051</u>	<u>7</u>	<u>.038</u>	<u>3</u>	<u>27</u>	<u>200</u>	<u>V.I.R.</u>	<u>DOUBLE BRAIDED IN CONDUIT.</u>
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 ...	<u>1</u>	<u>1</u>	<u>.003</u>	<u>7</u>	<u>.024</u>	<u>4.5</u>	<u>10</u>	<u>20</u>	<u>V.I.R.</u>	<u>DOUBLE BRAIDED IN CONDUIT</u>
<u>ENGINE ROOM FAN.</u>	<u>1</u>	<u>1</u>	<u>.0081</u>	<u>7</u>	<u>.038</u>	<u>8.9</u>	<u>27</u>	<u>110</u>	<u>Do</u>	<u>Do Do</u>
<u>REFRIG. MOTOR.</u>	<u>1</u>	<u>1</u>	<u>.0081</u>	<u>7</u>	<u>.038</u>	<u>16</u>	<u>27</u>	<u>20</u>	<u>Do</u>	<u>Do Do</u>



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 following is a correct description

Victoria Machinery Depot Co., Ltd.

PER

Electrical Engineers.

Date 27 AUGUST 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 1.0 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 NIL courses in the case of the standard compass, and NIL degrees on NIL courses in the case of the steering compass.

PER

Builder's Signature.

Date 27 AUGUST 1942.

Is this installation a duplicate of a previous case YES If so, state name of vessel S.S. "FORT CAMPBELL" - Reg. 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 trials on generators attached. Maker's certificates covering steam auxiliary engines, (driving generators) and generators attached.

As fitted plans 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 ... \$12500

Travelling Expenses (if any) \$2500

When applied for, 10<sup>th</sup> Aug 1942  
When received, 19

Surveyors to Lloyd's Register of Shipping.

Committee's Minute TUE 10 NOV 1942

Assigned See Tr. 86. 5789