

REPORT ON ELECTRICAL EQUIPMENT.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

Received at London Office

27 MAY 1946

Date of writing Report 15th Feb., 1946 When handed in at Local Office 15th Feb., 1946 Port of Vancouver, B.C.

No. in Survey held at Prince Rupert, B.C. Date, First Survey 6th Dec., 1945 Last Survey 4th April, 1946
 (Number of Visits 10)

Reg. Book. --- on the Steel Single Screw Steamer "OTTAWA PAGET" Tons { Gross 898.27
 Net 419.63

Built at Prince Rupert, B.C. By whom built Prince Rupert Drydock & Yard No. 58 Shipyard. When built 1945-46

Owners --- Port belonging to ---

Electric Light Installation fitted by Mott Electric Ltd. Contract No. --- When fitted 1946

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 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 ship's Trial results attached. Have machines over 100 kw. been inspected by the Surveyors during manufacture and testing Under 100 KW

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 Starboard side of engine room. 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 Starboard side after end of engine room in a fore and aft direction.

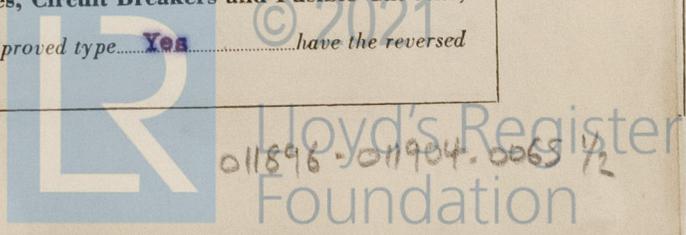
If the generators and main switchboard are not placed in the same compartment, is each generator provided with a fuse on each insulated pole as near as possible to the terminals of the generator, additional to that provided on the main switchboard Same compartment

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 Yes 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 Yes, 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 three pole circuit breakers on separate panels with overload and reverse current trips 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 2 ammeters 2 volt-meters --- synchronizing device for paralleling purposes. For compound machines is the ammeter connected on the opposite pole to equalizer connection Yes

Earth Testing, state what means are provided at the main switchboard for indicating the state of the insulation of the system Multiple-way switch on each generator voltmeter wired to give ground readings, also 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. **Yes** Joint Boxes, Section and Distribution Boards, is the construction, protection, insulation, material, and position of these as per rule. **Yes**
 on High Pressure. on telephones
 Cables: Single/~~multicore~~ multicore. / 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. **Navigation Lights 1.4 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. **both**
 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, 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. - - , are the cap screws of brass. - - , 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 **XI**. **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. - - -
 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**
 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. - -
 how are the cables led
 where are the controlling switches situated. - - -
 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. - - , are air heaters constructed and fitted as per Rule. - -
 Searchlight Lamps, No. of **None fitted**, whether fixed or portable. - - - , are their fittings as per Rule. - -
 Arc 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. **Under 100 BHP** Control Gear and Resistance, 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. - - - 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 ...	2	15	110	136	575	Steam Reciprocating	- - -	- - -
AUXILIARY ...								
EMERGENCY ...								
ROTARY TRANSFORMER								

GENERATOR, LIGHTING AND HEATING CONDUCTORS.

DESCRIPTION.	CONDUCTORS.		COMPOSITION OF STRAND.		TOTAL MAXIMUM CURRENT.		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	1	.1964	19	.1147	136	180	64	Rubber	In conduit
EQUALISER CONNECTIONS	1	.1964	19	.1147	-	180	32	"	"
AUXILIARY GENERATOR									
EMERGENCY GENERATOR									
ROTARY TRANSFORMER (MOTOR GENERATOR)									
ENGINE ROOM & BOILER ROOM Ltg. L.5	1	.0206	7	.061	24.4	43	54	Rubber	In conduit
AUXILIARY SWITCHBOARDS									
Power Distribution Box P.D.P.	1	.082	19	.074	72	102	50	Rubber	In conduit
Refrigeration	1	.0051	7	.030	12	16	96	Rubber	" "
Navigation Lights	1	.005	7	.030	1.9	16	436	Rubber	Lead covered & in conduit
ACCOMMODATION Aft L.1	1	.0206	7	.061	32.7	43	86	"	In conduit
Cargo Ltg. Conn. Box L2	1	.0129	7	.048	26	35	52	"	" "
Midship Ltg. L.3	1	.032	7	.077	19.8	55	396	"	Lead covered & in conduit
Bridge Accom. Ltg. L4	1	.032	7	.077	19.4	55	410	"	" "
Battery Charging Panel	1	.0032	7	.024	5	10	436	"	" "
WIRELESS	1	.0206	7	.061	-	43	408	"	" "
SEARCHLIGHT									
MASTHEAD LIGHT	1	.0032	7	.024	.3	10	162	Rubber	Lead covered & in conduit
SIDE LIGHTS	1	.0032	7	.024	.3	10	64	"	Lead covered
COMPASS LIGHTS	1	.0032	7	.024	.2	10	30	"	" "
POOP LIGHTS									
CARGO LIGHTS									
ARC LAMPS									
HEATERS									

Feeders only

MOTOR CONDUCTORS.

DESCRIPTION.	No. of Motors.	CONDUCTORS.		COMPOSITION OF STRAND.		TOTAL MAXIMUM CURRENT.		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										
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										
Engine Room Supply	2	1	.008	7	.038	12.0	27	170	Rubber	In conduit
" " Exhaust	1	1	.005	7	.030	6.2	16	178	"	" "
Galley Exhaust	2	1	.005	7	.030	3.0	16	360	"	" "
Midship Supply	2	1	.005	7	.030	7.0	16	370	"	" "
Aft Accom. Supply	2	1	.005	7	.030	8.7	16	160	"	" "

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.

J. H. Howard

Electrical Engineers.

Date 31st. Jan., 1946

MOTT ELECTRIC LIMITED

COMPASSES.

Distance between electric generators or motors and standard compass 23'-2" (Galley exhaust fan)

Distance between electric generators or motors and steering compass 18'-8" (" " ")

The nearest cables to the compasses are as follows:-

A cable carrying .2 Ampères 4 feet from standard compass 3 feet from steering compass. (Wheelhouse Light)

A cable carrying .1 Ampères 2/3 feet from standard compass 2/3 feet from steering compass. (Compass Lights)

A cable carrying .1 Ampères 8 feet from standard compass 2 feet from steering compass. (Telegraph 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 courses in the case of the standard compass, and Nil degrees on All courses in the case of the steering compass.

PRINCE RUPERT DRY DOCK & SHIPYARD

R. Miller
Manager

Builder's Signature.

Date 31st. Jan., 1946

Is this installation a duplicate of a previous case. Yes. If so, state name of vessel S.S. "OTTAWA PANDA" - Vancouver Report No. 6789.

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 approved plans, New York letters and the 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 my opinion is eligible to have the Society's Classification without Special Notation.

Copies of particulars of ship's Trials on generators attached.

Makers' Certificates covering steam auxiliary engines (driving generators) and generator tests sheets attached. Maker's Certificate covering main switchboard attached.

As fitted plan of electrical wiring attached.

The electrical equipment has also been surveyed during construction and installation on behalf of Wartime Shipbuilding Ltd. to ensure that the terms of the Specification have been fully complied with and this work has been satisfactorily carried out.

Noted Hru 4.6.46

Total Capacity of Generators 30 Kilowatts.

The amount of Fee ... \$90.00

Traveling Expenses (if any) \$25.00

When applied for, 22 Feb., 1946
When received, 19

F. J. Hill

Surveyor to Lloyd's Register of Shipping.

Committee's Minute

FRI 7 JUN 1946

Assigned see minute on T.C. Mech. Rpt.



Lloyd's Register Foundation