

REPORT ON ELECTRICAL EQUIPMENT.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

Received at London Office

10 AUG 1944

Date of writing Report 7th June, 1944 When handed in at Local Office 7th June, 1944 Port of Vancouver, B. C.
 No. in Survey held at Vancouver, B. C. Date, First Survey 22nd March, 1944 Last Survey 7th June, 1944
 Reg. Book. (Number of Visits 15)
 - - on the Steel Single Screw Steamer "FORT KILMAR" Tons { Gross 7199.71
 Net 4003.23
 Built at North Vancouver, B.C. By whom built Burrard Dry Dock Co. Ltd. Yard No. 208 When built 1944
 Owners Minister of Munitions & Supply of Canada Port belonging to
 Electric Light Installation fitted by Burrard Dry Dock Co. Ltd. Contract No. When fitted 1944
 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 (50KW Stabilized Shunt)
 are they over compounded 5 per cent. 50 K.W. - Yes
15 K.W. - No if not compound wound state distance between each generator

Where more than one generator is fitted are they arranged to run in parallel 2-15 K.W. Generators Arranged to run in parallel
2-50 K.W. 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

Position of Generators 2-15 K.W. Generators: Engine Room Generator platform first engine level
2-50 K.W. 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 starboard generator platform, control panel for 50 K.W. generators at port generator 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 - -

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 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

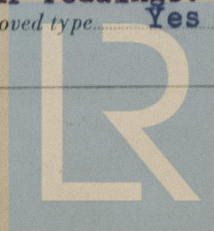
Main Switchgear, description of switchgear for each generator and each outgoing circuit, and arrangement of equalizer switches 150 Ampere D.P. Linked circuit breakers on separate panels with overload and reverse current trips and a Three Pole isolating switch for each 15K.W. Generator. 450 Amp. D.P. Linked circuit breaker dead front panel type with overload & reverse current trip relays & a three pole isolating switch for each 50K.W. Generator. D.P.D.T. Linked Selector Switches 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 50K.W. Panel 2 ammeters 2 voltmeters

fire-resisting material or lined with approved material Yes Instruments on main switchboard 5 ammeters 4 volt- meters Selector synchronising device for paralleling purposes For compound machines is the ammeter connected on the opposite pole to equaliser connection switch on centre 15K.W. Generator voltmeter

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

Centre 15K.W. generator voltmeter has a selector switch Switches, Circuit Breakers and Fusible Cut-outs, wired to give ground readings in addition to Generator & Bus Bar readings. Also Earth Lamps & switch 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**

Cables: Single, twin, concentric, or multicore **Single and twin on high pressure** **Yes** are the cables insulated and protected as per Tables IV, V, X or XI of the Rules **Approved**

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. **Yes** 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. **Both**

Support and Protection of Cables, state how the cables are supported and protected **In accommodation spaces clipped to** **woodwork, steel structure, and perforated tray by brass or galvanized steel clips spaced as** **per Rule, elsewhere and through 60°F - 70°F Air conditioned rooms 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. **Yes** 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 (P.V.C. cables fitted)**

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 Hulst**

Emergency Hand Lamps fitted throughout the ship.

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 Magazine** **(Russell Stoll No. 4521 Explosion Proof Fittings) & in forepeak store in & adjacent to Gasoline** **Tank space (Approved pump room fittings in forepeak bulkheads & Admiralty** **Magazine fittings A.P. 7007B)** **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. **Yes** are air heaters constructed and fitted as per Rule. **Yes**

Searchlight Lamps, No. of **1 - 12" - 1000** whether fixed or portable. **Spigot on both** **sides of Flying Bridge** **are their fittings as per Rule. Yes**

Arc Lamps, other than searchlight lamps, No. of **1** are their live parts insulated from the frame or case. **Yes** are their fittings as per Rule. **Yes**

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. **Yes** and **Yes**

have machines of over 100 BHP been inspected by the Surveyors during manufacture and testing. **under Control Gear and Resistances, are the generator** **100 B.H.P.**

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. **Heavy** Ships carrying Oil having a Flash Point less than 150°F. Have the special requirements of derricks and telescopic mast bonded to deck

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. **Yes** are all fuses of the filled cartridge type. **Yes** are they of an approved type. **Yes**

If portable lamps for use in dangerous spaces are supplied, are they of a self-contained, battery-fed type approved by the Home Office. **Yes**

Spare Gear, if the vessel is for open sea service have spares been supplied as per Rule. **Yes**

DESCRIPTION OF GENERATOR.	No. of	RATED AT				DRIVEN BY	WHERE DRIVEN BY AN INTERNAL COMBUSTION ENGINE.	
		Kilowatts.	Volts.	Amperes.	Rev. per Min.		Fuel Used.	Flash Point of Fuel.
MAIN ...	3	15	110	136	575	Steam Reciprocating	-	-
AUXILIARY ...	2	50	110 - 120	416	1200	Heavy Oil Engine	Diesel Oil	Above 150°F
EMERGENCY ...								
ROTARY TRANSFORMER								

DESCRIPTION.	No. per Pole.	CONDUCTORS.		COMPOSITION OF STRAND.		TOTAL MAXIMUM CURRENT. AMPERES.		Approximate Length. (Lead and Return.) Feet.	Insulated with	HOW PROTECTED
		No.	Total Nominal Area per Pole Sq. Ins.	No.	Diameter.	In Circuit.	Rule.			
MAIN GENERATOR	1	1	.166	19	.105	136	162	30	Rubber	In conduit
EQUALISER CONNECTIONS	1	1	.082	19	.074	-	102	15	"	" "
AUXILIARY GENERATORS	1	1	1.0	127	.103	416	595	30	"	Lead covered
EMERGENCY GENERATOR	1	1	.3	37	.103	-	240	15	"	" "
Rotary Transformer	1	1	.131	19	.094	125	225	30	Varnished Cambric	In conduit
Boiler Room Lighting	1	1	.082	19	.074	61	113	200	Varnished Cambric	Lead covered
ENGINE ROOM LIGHTING	1	1	.052	7	.097	47.5	75	30	Rubber	In conduit
Low power Panel	1	1	.008	7	.038	20	27	20	"	Switchboard Wiring
Boiler Room	2	2	2.0	127	.103	832	1190	90	"	Lead covered
Accumulator Switchboards										
Engineers	1	1	.082	19	.074	76	102	100	Rubber	In conduit
Accommodation	1	1	.082	19	.074	77	102	375	VCIC and	Rubber in conduit
Lighting Saloon	1	1	.082	19	.074	79	102	425	Rubber	In conduit
hting Room	1	1	.082	19	.074	67	102	200	"	" "
" Aft "	1	1	.082	19	.074	67	102	200	"	" "
Navigation	1	1	.032	7	.077	18	55	425	PVC-L.C. and	Rubber in conduit
WIRELESS	1	1	.052	7	.097	25	75	400	VC-L.C. and	Rubber in conduit
Gyro	1	1	.032	7	.077	5	55	400	P.V.C-L.C. &	" " "
SEARCHLIGHT	1	1	.003	7	.024	.5	10	358	P.V.C-L.C. &	" " "
MASTHEAD LIGHT	1	1	.003	7	.024	.5	115	74	P.V.C.	Lead covered
SIDE LIGHTS	1	1	.003	7	.024	.3	115	20	P.V.C.	" "
COMPASS LIGHTS	1	1	.003	7	.024	.3	115	20	P.V.C.	" "
POOP LIGHTS	1	1	.003	7	.024	.3	115	20	P.V.C.	" "
CARGO LIGHTS	1	1	.020	7	.061	22	43	225	Rubber	In conduit
ARC LAMPS	1	1	.020	7	.061	22	43	225	Rubber	In conduit
HEATERS	1	1	.020	7	.061	22	43	225	Rubber	In conduit

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.			
Final Distribution	1	1	.024	7	.024	7	.024	7	Insulated with either rubber or synthetic resin	Lead covered or in conduit
MAIN BILGE LINE PUMPS	1	1	.005	7	.030	6.5	16	10	Rubber	In conduit
GENERAL SERVICE PUMP	1	1	.020	7	.061	15	43	50	Rubber	In conduit
EMERGENCY BILGE PUMP	1	1	.032	7	.077	40	55	425	"	" "
SANITARY PUMP	1	1	.020	7	.061	20	43	250	"	" "
CIRC. SEA WATER PUMPS	1	1	.032	7	.077	30	55	200	"	" "
CIRC. FRESH WATER PUMPS	1	1	.032	7	.077	30	55	200	"	" "
AIR COMPRESSOR	1	1	.032	7	.077	30	55	200	"	" "
FRESH WATER PUMP	1	1	.032	7	.077	30	55	200	"	" "
Misc. Power Eng. Bt.	3	1	.020	7	.061	15	43	50	Rubber	In conduit
Engine Room Fan	2	1	.032	7	.077	40	55	425	"	" "
Vent Fans No. 1	4	1	.020	7	.061	20	43	250	"	" "
Vent Fans Amidships	4	1	.020	7	.061	20	43	250	"	" "
Vent Fans Aft	4	1	.020	7	.061	20	43	250	"	" "
Oil Fuel Transfer Pump	6	1	.032	7	.077	30	55	200	"	" "
WINDLASS	1	1	.032	7	.077	30	55	200	"	" "
WINCHES, FORWARD	1	1	.032	7	.077	30	55	200	"	" "
WINCHES, AFT	1	1	.032	7	.077	30	55	200	"	" "
STEERING GEAR—										
(a) MOTOR GENERATOR	1	1	.032	7	.077	30	55	200	"	" "
(b) MAIN MOTOR	1	1	.032	7	.077	30	55	200	"	" "
WORKSHOP MOTOR	1	1	.032	7	.077	30	55	200	"	" "
VENTILATING FANS	1	1	.032	7	.077	30	55	200	"	" "
Refrigerator	1	1	.082	19	.074	65	102	220	Rubber	In conduit
Refrigerator	1	1	.082	19	.074	90	102	220	"	" "
Refrigerator	1	1	.082	19	.074	100	102	360	"	" "
Refrigerator	1	1	.082	19	.074	100	102	360	"	" "
Refrigerator	1	1	.082	19	.074	100	102	360	"	" "
Refrigerator	1	1	.082	19	.074	100	102	360	"	" "
Power Surgery	1	1	.032	7	.077	15	56	100	P.V.C.	Lead covered

(Note: This is the only P.V.C. Insulated Cable in the Machinery Space)

X American Institute of Electrical Engineers current carrying capacity for twin core cables Table No.10, single core cables by interpolation from tables No.1 & 2 of Society's Rules

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.

Burrard Dry Dock Company, Limited

Electrical Engineers.

Date 7th June, 1944

COMPASSES.

Distance between electric generators or motors and standard compass 19 Feet (Wireless alternator)

Distance between electric generators or motors and steering compass 16 Feet

The nearest cables to the compasses are as follows:—

A cable carrying 3 Ampères 9 inches feet from standard compass 9 inches feet from steering compass. (Compass Light)

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

Burrard Dry Dock Company, Limited

Builder's Signature.

Date 7th June, 1944

Is this installation a duplicate of a previous case No If so, state name of vessel This is the first Refrigerated Victualling Ship built by Burrard Dry Dock Co. Ltd.

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, and special attention has

been given to the installation of synthetic resin insulated cables, and in the machinery spaces they have been kept at least 1" clear of all steelwork to allow for air circulation

The installation has been examined under full working conditions, tested as per Rule 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.

Makers' Certificates covering steam auxiliary engines (driving 15 K.W. 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 Shipbuilding Ltd. to ensure that the terms of the Specification have been fully complied with and this work has been satisfactorily carried out.

Report 4c covering Oil Engines driving 50 K.W. Generator Sets forwarded herewith.

Total Capacity of Generators 145 Kilowatts.

The amount of Fee ... £ \$125.00 : When applied for, 29th May 1944

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

Committee's Minute

Assigned

TUES. 22 AUG 1944

WED. 6 SEP 1944

see minute on Va Rmc Rpt. (26.)

see minute on R Rpt.