

REPORT ON ELECTRICAL EQUIPMENT.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

17 AUG 1935

Date of writing Report 7th August 1935 When handed in at Local Office 16/8 ¹⁹³⁵ Port of Copenhagen
 No. in Survey held at Aalborg Date, First Survey 15th May Last Survey 1st August 1935
 Reg. Book. 37501 on the Single Screw Motor Vessel CANADA (Member of Flots 15)
 Built at Aalborg By whom built of Aalborg Skibsreparatørværk Yard No. 62 Tons { Gross 11107.90
 Owners of Det Glacialiske Kompagni Port belonging to Copenhagen Net 6586.46
 Electric Light Installation fitted by The Builders Contract No. - When fitted 1935
 Is the Vessel fitted for carrying Petroleum in bulk no.

RETAIN

System of Distribution Two conductor insulated system.

Pressure of supply for Lighting 220 volts, **Heating** 220 volts, **Power** 220 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. yes, 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 sent herewith Have machines over 100 kw. been inspected by the Surveyors during manufacture and testing yes

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 placed in the main engine room, floor level, 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 no woodwork and etc. 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 On a platform in the after end of the motor room
 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 ✓

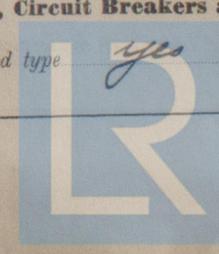
Switchboards, are they placed in accessible positions, free from inflammable gases and acid fumes yes, are they protected from mechanical injury and damage from water, steam or oil yes, if situated near unprotected woodwork or other combustible material, state distance of same horizontally from or vertically above the switchboards ✓ and ✓, are they constructed wholly of durable, non-ignitable non-absorbent materials yes, 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 yes, 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
 For each generator: a 3 pole circuit breaker with overload & reversed current trips
 For outgoing circuits: a 2 pole circuit breaker with fuses on each pole

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 9 ammeters 5 voltmeters ✓ 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 1 set of earth lamps & 1 voltmeter fitted with ohm scale **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 wire* 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 *8 rolls* ✓ **Fall of Pressure**, state maximum between bus bars and any point of the installation under maximum load *8 rolls* ✓ **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*

Support and Protection of Cables, state how the cables are supported and protected *Armoured cables used, laid on steel plates, supported by steel clips, in refrigerated holds by hard wood clips.*

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 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 *no joints in cables*

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*

Earthing Connections, state what earthing connections are fitted and their respective sectional areas *✓*, are their connections made as per Rule *✓*

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 *placed in a stow on the promenade deck worked by a 40 HP 4SCSA Diesel engine, Light panel fitted with double pole change over switch*

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 the chart room on bridge* 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 *no*

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 *✓*, are all switches and lampholders constructed wholly of non-ignitable, non-absorbent materials *✓*

Heating and Cooking Appliances, are they constructed and fitted as per Rule *yes*, are air heaters constructed and fitted as per Rule *✓*

Searchlight Lamps, No. of *1 off*, whether fixed or portable *portable*, are their fittings as per Rule *yes*

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 *yes*, 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 *no*, 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 *none* **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 *yes* **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 fitted 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.	Ampères.	Revs. per Min.	Fuel Used.	Flash Point of Fuel.		
MAIN	4	4x165	220	750	400	4cyl. 2SCSA Diesel engine	Comd. oil	Above 150°F	
AUXILIARY						22" Turbine driven x 3 3/4" dia.			
EMERGENCY	1	26	220	118	850	4cyl. 4SCSA Diesel engine	Comd. oil	Above 150°F	
ROTARY TRANSFORMER						18" Turbine driven x 1 1/2" dia.			

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. mm.	No.	Diameter.	Circuit.	Rule.			
MAIN GENERATOR	2	2x400	91	2.36	750	780	70	India rubber	Steel wire armoured
EQUALISER CONNECTIONS	1	400	91	2.36			35	---	Lead covered
AUXILIARY GENERATOR									
EMERGENCY GENERATOR	1	70	19	2.16	120	124	80	---	---
ROTARY TRANSFORMER MOTOR GENERATOR									
ENGINE ROOM LIGHT PANEL	1	310	61	2.54	324	324	80	---	---
BOILER ROOM									
AUXILIARY SWITCHBOARDS									
Thermo tank fans	1	50	19	1.83	95	98	80	---	---
Fans in ref. holds	1	400	91	2.36	375	390	44	---	---
Galley electric heaters	1	310	61	2.54	320	324	86	---	---
Lavatory electric	1	150	37	2.27	200	206	186	---	---
Lower aft	1	10	7	1.35	15	38	152	---	---
ACCOMMODATION PASSENGER									
Passenger	1	85	19	1.53	25	78	34	---	---
Crew messes	1	35	19	1.53	30	78	36	---	---
Saloon officers	2x1	50	19	1.83	40x45	98	50x54	---	---
Wireless	1	6	7	1.05	12	29	28	---	---
SEARCHLIGHT	1	10	7	1.35	35	38	98	---	---
MASTHEAD LIGHT FOR AFT	1	25	7	2.13	50	65	28	---	---
SIDE LIGHTS	1	1.5	1	1.38	0.2	9.3	60-130	---	---
COMPASS LIGHTS	1	1.5	1	1.38	0.1	9.3	18	---	---
POOP LIGHTS	1	1.5	1	1.38	0.2	9.3	140	---	---
CARGO LIGHTS									
ARC LAMPS									
HEATERS									

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. mm.	No.	Diameter.	In Circuit.	Rule.			
BALLAST PUMP	1	1	25	7	2.13	60	65	70	India rubber	Steel wire armoured
MAIN BILGE LINE PUMPS	1	1	16	7	1.7	40	49	64	rubber	Lead covered
BILGE & FIRE GENERAL SERVICE PUMP	1	1	10	7	1.35	30	38			
EMERGENCY BILGE PUMP	1	1	25	7	2.13	54	65	50	---	---
SAW PUMP	1	1	16	7	1.7	48	40			
CIRC. SEA WATER PUMPS	2	1	70	19	2.16	120	124	10-12	---	---
CIRC. FRESH WATER PUMPS	1	1	70	19	2.16	120	124	12	---	---
AIR COMPRESSOR	2	1	310	61	2.54	320	324	36	---	---
FRESH WATER PUMP ROOM FANS	1	1	70	19	2.13	120	124	80	---	---
ENGINE TURNING GEAR										
ENGINE REVERSING GEAR	2	1	150	37	2.27	200	206	16	---	---
LUBRICATING OIL PUMPS	1	1	25	7	2.13	60	65	50	---	---
OIL FUEL TRANSFER PUMP	1	1	150	37	2.27	248	260	30	---	---
WINDLASS	1	1	150	37	2.27	248	260	30	---	---
WINGES, FORWARD etc	8	1	240	61	2.24	270	272	80	---	---
--- starting	4	1	120	37	2.23	175	177	52	---	---
WINGES, AFT etc	8	1	240	61	2.24	270	272	78	---	---
STEERING GEAR										
(a) MOTOR GENERATOR										
(b) MAIN MOTOR	1	1	150	37	2.27	240	260	107	---	---
WORKSHOP MOTOR S	3	1	4	7	0.85	20	22	18	---	---
VENTILATING FANS										
CO2 compressor (comp)	3	1	310	61	2.54	340	324	40-56-56	---	---
CO2 compressor (perm)	1	1	50	19	1.83	96	98	40	---	---
CO2 cooling the pumps	2	1	6	7	1.05	28	29	52-62	---	---
Small auxiliary coil pumps	5	1	25	7	2.13	60	65		---	---
Oil purifiers	3	1	10	7	1.35	36	38		---	---

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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.

AKTIESELSKABET
NAKSKOV SKIBSVÆRFT

Arvid J. Jørgensen Electrical Engineers.

Date _____

COMPASSES.

Distance between electric generators or motors and standard compass *12 m from fans on promenade deck*

Distance between electric generators or motors and steering compass *10 m*

The nearest cables to the compasses are as follows:— *the magnetic system in the*

A cable carrying *0.1* Ampères *6"* feet from standard compass *feet from steering compass.*

A cable carrying *0.1* Ampères *6"* feet from standard compass *the magnetic system in the* feet from steering compass.

A cable carrying *-* Ampères *-* feet from standard compass *-* 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 *0* degrees on *any* course in the case of the standard

compass, and *0°* degrees on *any* course in the case of the steering compass.

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Arvid J. Jørgensen Builder's Signature.

Date _____

Is this installation a duplicate of a previous case *no* If so, state name of vessel *✓*

General Remarks (State quality of workmanship, opinions as to class, &c. *The above electric light and power installations has been fitted in accordance with the Society's Rules, the approved plans and the requirements contained in the Secretary's letter E dated*

The material used in construction complies with the Rules and the workmanship is of good description throughout.

On completion the whole installation was tested as per Rules and under full power working condition and found efficient in every respect.

*Noted
L.J.
19/8/35*

Total Capacity of Generators *686* Kilowatts.

The amount of Fee ... *Fr. 1089.76* When applied for, *16/8 1935*

Travelling Expenses (if any) £ *30.8.35* When received, *30/8*

J. Langkilde Jensen
Surveyor to Lloyd's Register of Shipping.

Committee's Minute *FBI 23 AUG 1935*

Assigned *See minute on F.B. Rpt.*

2015.54.—Transfer.
The Surveys are requested not to write on or below the space for Committee's Minute.



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