

# REPORT ON ELECTRICAL EQUIPMENT.

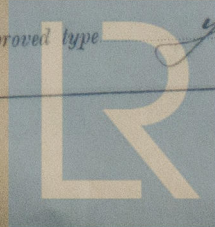
(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

Received at London Office

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Date of writing Report 28<sup>th</sup> February 39 When handed in at Local Office 19 Port of Copenhagen  
 No. in Survey held at Copenhagen Date, First Survey 14<sup>th</sup> December 38 Last Survey 27<sup>th</sup> February 1939  
 Reg. Book. 87527 on the Steel Single Screw Motor Vessel CANADIAN STAR (Number of Visits 33)  
 Gross 8293.01 Tons  
 Net 5004.09  
 Built at Copenhagen By whom built Maschinen- & Selsbyggeri Yard No. 640 When built 1939  
 Owners Blue Star Line Ltd. Port belonging to London  
 Electric Light Installation fitted by W. Barnum & Wain's Maschinen- & Selsbyggeri Contract No. ✓ When fitted 1939  
 Is the Vessel fitted for carrying Petroleum in bulk No

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 current Power direct current  
 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 yes 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 MAIN in the engine room, one in port side, two in starboard side, the ventilation  
AUX (for harbour purpose) in top of engine casing  
 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 word etc. 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 for many  
 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 forward end of the engine  
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 no word 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 main generator: A three pole circuit breaker with overload and reverse current trips  
 For each outgoing circuit: A double pole switch and a fuse in 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 13 ammeters 3  
 voltmeters ✓ synchronising device for paralleling purposes. For compound machines is the ammeter connected on the opposite pole to equaliser connection  
 Earth Testing, state what means are provided at the main switchboard for indicating the state of the insulation of the system  
One set of earth lamps - One Voltmeter provided with Chinscale 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*

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

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 *For light 6 volts for power 8 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 *Yes*, or waterproof insulating type *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 *Lead covered*

Support and Protection of Cables, state how the cables are supported and protected *Yes* *5% cables in engine room and unventilated spaces*

*necessary protected by iron shunting or tubes. Cables on deck are laid in iron casings, covered with sealing compound and protected by service steel covers. Cables in cooler and fan spaces supported by clips of hard wood*

If cables are run in wood casings, are the casings and caps secured by screws *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*

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 *To all heating apparatus,*

*contacts for portable ventilating fans, light and motors in cooler spaces area - area of*

*working conductor - Minimum size = 4 1/2* *Yes*, 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 *At 3000 auxiliary generator for harbour purpose is*

*placed in big of engine casing. A change over switch and double pole switches and fuses are 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*

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 *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 *Yes*

*Yes*, how are the cables led

where are the controlling switches situated *Yes*

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 *Yes*, whether fixed or portable *Yes*, are their fittings as per Rule *Yes*

Arc Lamps, other than searchlight lamps, No. of *Yes*, 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 *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 *totally enclosed*

*Yes*, 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 *Yes* 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 *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*

## 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	3	280	220	1275	400	Heavy oil engine	Crude oil	above 150°F.
AUXILIARY	1	13	220	59	800	"	"	"
EMERGENCY								
ROTARY TRANSFORMER								

## GENERATOR, LIGHTING AND HEATING CONDUCTORS.

DESCRIPTION.	No. of	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. 1/4	No.	Diameter 1/16	Circuit.	Rate.			
MAIN GENERATOR			4 4 x 3/10	61	2.54	1275	1294	32-36-38	Vulcanized	Lead covered
EQUALISER CONNECTIONS			2 2 x 3/10	61	2.54		647	16-18-19	rubber	and braided
AUXILIARY GENERATOR	1651	1	35	19	1.53	60	78	10	"	"
EMERGENCY GENERATOR										
ROTARY TRANSFORMER										
ENGINE ROOM	14E	1	10	7	1.35	18	38	6	"	"
BOILER ROOM										
AUXILIARY SWITCHBOARDS	165	1	50	19	1.83	88	98	74	"	"
NAVIGATION	155	1	4	7	0.85	2.25	22	29	"	"
ACCOMMODAT-HEAT	115	1	50	19	1.83	95	98	36	"	"
BAKERY GALLEY	125	1	120	37	2.03	168	177	64	"	"
DECK LIGHT-FORW	165	1	6	7	1.35	23	38	104	"	"
" " AFT	165	1	6	7	1.35	17	38	82	"	"
ACCOMMODATION PASS.	165	1	16	7	1.70	27	49	56	"	"
" " CAPTAIN	165	1	16	7	1.70	9	49	68	"	"
" " OFFICERS	165	1	10	7	1.35	22.5	38	60	"	"
HOLDS AFT-CREW	165	1	4	7	0.85	8	22	88	"	"
" " FORW	165	1	2.5	7	0.67	7	15	92	"	"
WIRELESS	175	1	10	7	1.35	20	38	66	"	"
SEARCHLIGHT										
MASTHEAD LIGHT	1	1.5	1	1.38	0.3	10	244	134	"	"
SIDE LIGHTS	1	1.5	1	1.38	0.3	10	30-30	"	"	"
COMPASS LIGHTS	1	1.5	1	1.38	0.3	10	20-20	"	"	"
POOP LIGHTS	1	1.5	1	1.38	0.3	10	202	"	"	"
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. Ins. 1/4	No.	Diameter 1/16	In Circuit.	Rate.			
BALLAST PUMP	26E	1	50	19	1.83	90	98	20	Vulcanized	Lead covered
SANITARY MAIN BILGE LINE PUMPS	25E	1	16	7	1.70	37	38	60	rubber	braided
GENERAL SERVICE PUMP										
EMERGENCY BILGE PUMP										
SANITARY PUMP	27E	2	95	37	1.80	150	152	45-45	"	"
CIRC. SEA WATER PUMPS	28E	1	95	37	1.80	150	152	100	"	"
CIRC. FRESH WATER PUMPS	29E	1	310	61	2.54	300	324	42-42	"	"
AIR COMPRESSOR	18E	2	10	7	1.35	22.5	38	16	"	"
FRESH WATER PUMP	35E	1	16	7	1.70	45	49	89	"	"
ENGINE TURNING GEAR	31E	1	16	7	1.70	45	49	89	"	"
ENGINE REVERSING GEAR										
LUBRICATING OIL PUMPS	30E	2	240	61	2.24	243	272	42-44	"	"
OIL FUEL TRANSFER PUMP	24E	1	25	19	1.30	56	64	52	"	"
AUX. COOLING WATER FEED	34E	1	16	7	1.70	45	49	21	"	"
WINDLASS										
AUX. COOLING WATER	34E	2	10	7	1.35	22.5	38	14	"	"
WINCHES, FORWARD	1-2	1	16	7	1.70	45	49	18	"	"
FRESH WATER PUMP	35E	1	16	7	1.70	45	49	18	"	"
WINCHES, AFT	35E	1	4	7	0.85	12	22	15	"	"
DRILL	35E	1	2.5	7	0.67	6	15	10	"	"
GRINDING	35E	1	1.5	7	1.38	4	10	10	"	"
STEERING GEAR	35E	1	1.5	7	1.38	2	10	16	"	"
GLOVER FOR BOILER	35E	1	2.5	7	0.67	7	15	18	"	"
CIRCULAR PUMP	35E	1	2.5	7	0.67	7	15	18	"	"
(a) MOTOR GENERATOR										
STEERING GEAR	235	1	70	37	1.55	124	130	360	"	"
(b) MAIN MOTOR										
WORKSHOP MOTOR										
VENTILATING FANS	13E	1	50	19	1.83	88	98	10	"	"
" " EMG ROOM	13E	3	10	7	1.35	26	38	31-54-76	"	"
" " TUNNEL	13E	4	2.5	7	0.67	10	15	172	"	"
PURIFIERS FEED	33E	1	16	7	1.70	36	49	53	"	"
" " "	33E	2	4	7	0.85	12	22	7-7-7	"	"



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  
BURMEISTER & WAINSKIN-00SKIBSBYGGERI

Electrical Engineers.

Date

#### COMPASSES.

Distance between electric generators or motors and standard compass To Generator 22 METERS - 50 Meters 10 METERS

Distance between electric generators or motors and steering compass " 20 " " " 8 " "

The nearest cables to the compasses are as follows:—

A cable carrying 2.25 Ampères 4 feet from standard compass 3 feet from steering compass.

A cable carrying 0.07 Ampères 10 feet from standard compass and 10 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 all course in the case of the standard compass, and 0 degrees on all course in the case of the steering compass.

AKTIESELSKABET  
BURMEISTER & WAINSKIN-00SKIBSBYGGERI

Builder's Signature.

Date

Is this installation a duplicate of a previous case yes If so, state name of vessel M/S California Star of London Copenhagen Report No 10746

General Remarks (State quality of workmanship, opinions as to class, &c. The electric installation as

herein described has been constructed and fitted under special survey and in accordance with the Rules, the approved plans and the requirements contained in the Secretary's letter E dated 26/5 and 25/10-1938.

The material used is in accordance with the Rules and the workmanship is good.

On completion the whole installation was tested under full power working conditions and found satisfactory

Noted  
10/3/39

Total Capacity of Generators 853 Kilowatts.

The amount of Fee ... £ 1485.68 6/3 19/39

Travelling Expenses (if any) £ 162.9 16/5 39/10/5

Committee's Minute

FRI. 10 MAR 1939

Assigned

See FE machy rpt

Surveyor

Surveyor to Lloyd's Register of Shipping.