

# Report on Electrical Equipment.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

1 - MAR 1948

Received at London Office.....

Date of writing Report 17th Febr. 1948. When handed in at Local Office 27th Febr. 1948. Port of Gothenburg

Survey held at Gothenburg. Date, First Survey 31st March 47 Last Survey 19th February 1948. No. in Reg. Book. (Number of Visits 51)

33789 on the Twin Screw Motorship "S T O C K H O L M" Tons {Gross 11650 Net 6040

Built at Gothenburg. By whom built A-B. Götaverken. Yard No. 611. When built 1948.

Owners A-B. Svenska Amerika Linien. Port belonging to Gothenburg

Electrical Installation fitted by A-B. Götaverken. Contract No. ---. When fitted 1948.

Is vessel fitted for carrying Petroleum in bulk No. Is vessel equipped with D. F. Yes. E. S. D. Yes. Gy. C. Yes. Sub. Sig. No.

Have plans been submitted and approved Yes. System of Distribution Two-wire system. Voltage of supply for Lighting 220.

Heating ---. Power 220. Direct or Alternating Current, Lighting D.C. Power D.C. If Alternating Current state frequency ---. Prime Movers,

has the governing been tested and found efficient when the whole load is suddenly thrown on and off Yes. Are turbine emergency governors fitted with a

trip switch as per Rule ---. Generators, are they compound wound Yes. are they level compounded under working conditions Yes.

if not compound wound state distance between generators --- and from switchboard ---. Where more than one generator is fitted are they

arranged to run in parallel Yes. are shunt field regulators provided Yes. Is the compound winding connected to the negative or positive pole

Negative. Have machines over 100 kw. been inspected by the Surveyors during manufacture and testing Yes. Have certificates of

test for machines under 100 kw. been supplied Yes. and the results found as per rule Yes. Are the lubricating arrangements and the construction

of the generators as per rule Yes. Position of Generators Auxiliary engine room floor

is the ventilation in way of generators satisfactory Yes. are they clear of inflammable material Yes. if situated

near unprotected combustible material state distance from same horizontally --- and vertically ---. are the generators protected from mechanical

injury and damage from water, steam and oil Yes. are the bedplates and frames earthed Yes. and the prime movers and generators in metallic

contact Yes. Switchboards, where are main switchboards placed On a platform at the forward end of the auxiliary

engine room

are they in accessible positions, free from inflammable gases and acid fumes Yes. are they protected from mechanical injury and damage from water, steam

and oil Yes. if situated near unprotected combustible material state distance from same horizontally --- and vertically ---, what insulation

material is used for the panels Mica. if of synthetic insulating material is it an Approved Type ---, if of

semi-insulating material (slate or marble) are all conducting parts insulated therefrom as per Rule ---. Is the frame effectually earthed Yes.

Is the construction as per Rule Yes. including accessibility of parts Yes. absence of fuses on the back of the board Yes. individual fuses

to pilot and earth lamps, voltmeters, etc., Yes. locking of screws and nuts Yes. labelling of apparatus and fuses Yes. fuses on the dead

side of switches Yes. Description of Main Switchgear for each generator and arrangement of equaliser switches A double pole linked circuit

breaker with overload and reversed current trips and a single pole equaliser switch interlocked with the circuit

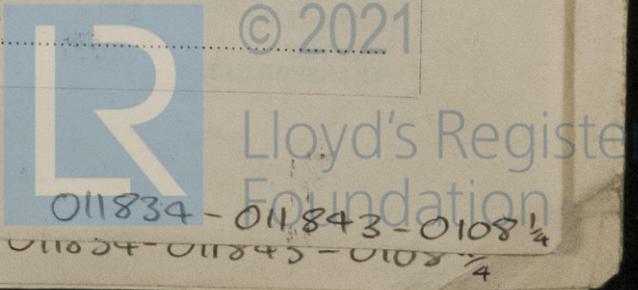
breaker as per Rule

and for each outgoing circuit A double pole switch and a fuse on each pole

are compartments containing switchboards composed of fire-resisting material or lined as per Rule Yes. Instruments on main switchboard 14

ammeters 5. voltmeters ---. synchronising devices. For compound machines in parallel is the ammeter connected on the pole opposite to the

equaliser connection Yes. Earth Testing, state means provided Ohm - meter



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**Switches, Circuit Breakers and Fuses**, are they as per Rule ..... **Yes** ..... are the fuses an approved type ..... **Yes** ..... are all fuses labelled per Rule ..... **Yes** ..... are the reversed current protection devices connected on the pole opposite to the equaliser connection ..... **Yes** ..... have they been tested under working conditions ..... **Yes** ..... **Joint Boxes, Section Boards and Distribution Boards**, is the construction and position as per Rule ..... **Yes** ..... **Cables**, are they insulated and protected as per the appropriate Tables of the Rules ..... **Yes** ..... if otherwise than as per Rule are they of an approved type ..... **Below Rule** ..... state maximum fall of pressure between bus bars and any point under maximum load **perm.** ..... are the ends of all cables having a section area of 0.04 square inch and above provided with ~~insulating sleeves~~ **bolted clamps** **Yes** ..... Are paper insulated and varnished cambric insulated cables sealed at the exposed ends ..... **Yes** ..... with insulating compound ..... or waterproof insulating tape ..... **Yes** ..... Are all the cable runs in accessible positions, not exposed to drip or accumulation of water or oil, high temperatures or risk of mechanical damage ..... **Yes** ..... are cables laid under machines or floorplates ..... **Yes** ..... if so, are they adequately protected ..... **Yes** ..... Are cables in machinery spaces, galleys, laundries, etc., lead covered ..... **Yes** ..... or run in conduit ..... **No** ..... State how the cables are supported and protected ..... **Supported by metal clips. All power cables lead covered and armoured or steel wire braided. Lighting cables in accommodations lead covered and run in wood casings or run in conduit** ..... Are all lead sheaths, armouring and conduits effectually bonded and earthed ..... **Yes** ..... Refrigerated chambers, are the cables and fittings as per Rule ..... **Yes** ..... Are all cables passing through decks and watertight bulkheads provided with deck tubes or watertight glands ..... **Yes** ..... where unarmoured cables pass through beams, etc., are the holes effectively bushed ..... **Yes** ..... and with what material ..... **Lead** ..... **Alternative Lighting**, the groups of lights in the engine and boiler rooms arranged as per Rule ..... **Yes** ..... **Emergency Supply**, state position ..... **In a separate compartment on the promenade deck** ..... and method of control ..... **A double pole linked switch and a fuse in each pole** ..... **Navigation Lamps**, are they separately wired ..... **Yes** ..... controlled by separate double pole switches ..... **Yes** ..... and fuses ..... **Yes** ..... Are the switches and fuses in a position accessible only to the officers on watch ..... **Yes** ..... automatic indicator fitted ..... **Yes** ..... **Secondary Batteries** are they constructed and fitted as per Rule ..... are they adequately ventilated ..... **Fittings**, are all fittings on weather decks, in stokeholds and engine rooms and wherever exposed to drip or condensed moisture, weatherproof ..... **Yes** ..... Are fittings installed where readily combustible materials or inflammable or explosive dust or gases are likely to be present ..... **Yes** ..... if so, how are they protected ..... **Flame proof fittings and gas tight piping** ..... and where are the controlling switches fitted ..... **Outside the spaces** ..... are all fittings suitably ventilated ..... **Yes** ..... are all fittings and accessories constructed and installed as per Rule ..... **Yes** ..... **Searchlight Lamps**, No. of ..... **1** ..... whether fixed or portable ..... **Fixed** ..... are their fittings as per Rule ..... **Yes** ..... **Heating and Cooking**, is the general construction as per Rule ..... **Yes** ..... are the frames effectually earthed ..... **Yes** ..... are heaters in the accommodation of the convection type ..... **Motors**, are all motors constructed and placed in well-ventilated compartments in which inflammable gases cannot accumulate and free from damage from steam and oil ..... **Yes** ..... if situated near unprotected combustible material state minimum distance from same horizontally ..... and vertically ..... Have motors of 100 BHP and over been inspected by the Surveyors during manufacture and testing ..... Have certificates of test for motors of 100 BHP intended for essential services been supplied and the results found as per Rule ..... **Yes** ..... **Control Gear and Resistances**, are they constructed and fitted as per Rule ..... **Yes** ..... **Lightning Conductors**, where required are they fitted as per Rule ..... **Ships carrying Oil having a Flash Point less than 150° F.** Have all the special requirements of the Rules for such ships been complied with ..... are all fuses of the 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 flame type ..... **Spare Gear**, if the vessel is for open sea service have spares been provided as per Rule ..... **Yes** ..... are they suitably stored in situations ..... **Insulation Tests**, has the insulation resistance of all circuits and apparatus been megger tested and found satisfactory ..... **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
MAIN	3	240	220	1090	350	Diesel oil engines	Diesel oil	Above 150
	2	120	220	545	350	Diesel oil engines	Diesel oil	Above 150
EMERGENCY ROTARY TRANSFORMER	1	40	220	182	750	Diesel oil engine	Diesel oil	Above 150



1m.11.42.-T (MADE AND PRINTED IN ENGLAND)

**GENERATOR CABLES.**

DESCRIPTION	KILOWATTS	CONDUCTORS		MAXIMUM CURRENT IN AMPERES		APPROX. LENGTH (lead plus return) MET.	INSULATED WITH	HOW PROTECTED.
		No. in Parallel Per Pole	Sectional Area Sq. mm.	In the Circuit	Rule			
MAIN GENERATORS I, II & III	240	5	185	1090 ✓	1165	22-28	Rubber	Lead covered & armoured.
" " EQUALISER		5	185	--	1165	22-28	"	- " -
" " IV & V	120	3	150	545 ✓	609	32-38	"	- " -
" " EQUALISER		3	150	--	609	32-38	"	- " -
EMERGENCY GENERATOR	40	1	150	182 ✓	203	32	"	- " -
ROTARY TRANSFORMER: MOTOR								
" " GENERATOR								

**MAIN DISTRIBUTION CABLES.**

AUX. SWITCHBOARDS AND SECTION BOARDS ...								
Power distribution board	KH I	1	4	17.1 ✓	21	10	Rubber	Lead covered & armoured.
- " -	KH II	1	2.5	12 ✓	13	36	"	- " -
- " -	KH III	1	70	119 ✓	125	40	"	- " -
- " -	KH IV	1	95	145 ✓	150	60	"	- " -
- " -	KH V	1	70	100 ✓	125	28	"	- " -
- " -	KH VI	1	95	126 ✓	150	44	"	- " -
- " -	KH VII	1	50	81 ✓	99	60	"	- " -
- " -	KM I	1	10	34 ✓	38	70	"	- " -
- " -	KM II	1	35	70 ✓	78	62	"	- " -
- " -	KM III	1	10	39 ✓	38	90	"	- " -
- " -	KM IV	1	16	39 ✓	48	90	"	- " -
- " -	KM V	1	95	133 ✓	150	92	"	- " -
- " -	KM VI	1	50	98 ✓	99	106	"	- " -
- " -	KM VII	1	35	71.35 ✓	78	80	"	- " -
- " -	KM VIII	1	120	176.8 ✓	175	84	"	- " -
- " -	KD I	1	120	164 ✓	192	96	"	- " -
- " -	KD II	1	50	81.95 ✓	99	84	"	- " -
- " -	KD III	1	185	228.8 ✓	233	80	"	- " -
- " -	KD IV	1	10	38 ✓	38	64	"	- " -
- " -	KD V	1	185	241.9 ✓	233	46	"	- " -
- " -	KD V A	1	50	72.7 ✓	99	44	"	- " -
- " -	KD V A I	1	4	16.6 ✓	21	36	"	- " -
- " -	KD V A II	1	6	23.1 ✓	29	46	"	- " -
- " -	KD V A III	1	10	33 ✓	38	46	"	- " -
- " -	KD V B	1	6	22.2 ✓	29	120	"	- " -
- " -	KD V C	1	50	81.5 ✓	99	44	"	- " -
- " -	KD V D	1	25	57.2 ✓	63	104	"	- " -
- " -	KD V D I A & I B	1	16	37.5 ✓	48	22	"	- " -
- " -	KD V D II	1	4	14.4 ✓	21	96	"	- " -
- " -	KD V D III	1	2.5	5.3 ✓	13	28	"	- " -
- " -	KD V E	1	2.5	18.3 ✓	13	72	"	- " -
- " -	KD VI	1	150	194 ✓	203	74	"	- " -
- " -	KD VII	1	50	84.5 ✓	99	90	"	- " -
- " -	KD VIII	1	25	60 ✓	63	100	"	- " -

**LIGHTING, ETC., CABLES.**

WIRELESS		1	25	50 ✓	63	140	Rubber	Lead covered & armoured
NAVIGATION LIGHTS		1	1.5	1 ✓	7	70	"	- " -
LIGHTING SECTION BOARD	B I	1	95	142 ✓	150	96	"	- " -
- " -	B II A&B	1	95	113 ✓	150	86	"	- " -
- " -	B III	2	95	258 ✓	300	66	"	- " -
- " -	B IV	1	150	176 ✓	203	52	"	- " -
- " -	B V	1	120	158 ✓	175	158	"	- " -
- " -	B VI	2	95	247 ✓	300	46	"	- " -
- " -	B VII	2	95	258 ✓	300	150	"	- " -
- " -	B VIII	1	70	110 ✓	125	30	"	- " -
- " -	B IX	1	95	149 ✓	150	156	"	- " -
- " -	B X A&B	1	25	60 ✓	63	80	"	- " -
LIGHTING DISTRIBUTION BOARD	B I A	1	6	25 ✓	29	24	"	- " -
- " -	B I B	1	10	32 ✓	38	16	"	- " -
- " -	B I C	1	10	35 ✓	38	38	"	- " -

electrical equipment of the motorship "Stockholm", of Gothenburg, No. 33789 in the Register Book.

## LIGHTING, ETC., CABLES (Continued).

LIGHTING DISTRIBUTION BOARD	B I D	1	10	35 ✓	38	48	Rubber	Lead covered & armoured.
- " -	B III A & B	1	10	38 ✓	38	50	"	- " -
- " -	B III C & D	1	10	34 ✓	38	42	"	- " -
- " -	B III E & F	1	10	33 ✓	38	76	"	- " -
- " -	B III G & H	1	10	38 ✓	38	52	"	- " -
- " -	B III J & K	1	10	36 ✓	38	40	"	- " -
- " -	B III L & M	1	10	38 ✓	38	72	"	- " -
- " -	B III N	1	10	28 ✓	38	80	"	- " -
- " -	B IV A & B	1	25	59 ✓	63	144	"	- " -
- " -	B IV C & D	1	16	45 ✓	48	128	"	- " -
- " -	B IV E	1	4	16 ✓	21	4	"	- " -
- " -	B IV F	1	10	35 ✓	38	2	"	- " -
- " -	B IV G	1	2.5	8 ✓	13	70	"	- " -
- " -	B IV H	1	2.5	10	13	76	"	- " -
- " -	B V A-B-C	1	16	44 ✓	48	74	"	- " -
- " -	B V D-E-F	1	10	36 ✓	38	62	"	- " -
- " -	B V H & G	1	10	38 ✓	38	46	"	- " -
- " -	B V J	1	4	19 ✓	21	2	"	- " -
- " -	B VI A & B	1	16	44 ✓	48	90	"	- " -
- " -	B VI C	1	25	48 ✓	63	60	"	- " -
- " -	B VI D & E	1	16	45 ✓	48	150	"	- " -
- " -	B VI F	1	2.5	8 ✓	13	84	"	- " -
- " -	B VI G & H	1	16	46 ✓	48	84	"	- " -
- " -	B VI J	1	4	17 ✓	21	2	"	- " -
- " -	B VI K & L	1	10	33 ✓	38	76	"	- " -
- " -	B VI M	1	2.5	8 ✓	13	26	"	- " -
- " -	B VII A-B-C	1	16	42 ✓	48	78	"	- " -
- " -	B VII D-E-F	1	10	38 ✓	38	82	"	- " -
- " -	B VII G-H-J	1	16	39 ✓	48	110	"	- " -
- " -	B VII K-L-M	1	10	32 ✓	38	58	"	- " -
- " -	B VII N-O-P	1	16	39 ✓	48	96	"	- " -
- " -	B VII R	1	16	45 ✓	48	84	"	- " -
- " -	B VII S	1	2.5	8	13	2	"	- " -
- " -	B VIII A-B	1	16	42 ✓	48	86	"	- " -
- " -	B VIII C-D	1	6	25 ✓	29	84	"	- " -
- " -	B VIII E-F	1	10	31 ✓	38	42	"	- " -
- " -	B IX A-B-C	1	10	31 ✓	38	74	"	- " -
- " -	B IX D & E	1	10	34 ✓	38	56	"	- " -
- " -	B IX F-G-H	1	10	38 ✓	38	56	"	- " -
- " -	B IX J & K	1	10	32 ✓	38	36	"	- " -

## MOTOR CABLES

Manoeuvring air compressors	"E"	3	54	1	150	198 ✓	203	84-66-62	Rubber	Lead covered & armoured
Small.aux.air compressor	"F"	1	2	1	2.5	8.7 ✓	13	120	"	- " -
Main cool. water pumps	"G"	3	65	2	70	242 ✓	250	140-148-156	"	- " -

electrical equipment of the motorship "Stockholm", of Gothenburg, No. 33789 in the Register Book.

## MOTOR CABLES (Continued)

Aux.eng.cool.water pumps	"J"	2	16	1	25	62	✓	63	26-28	Rubber	Lead covered & armoured
Main lubricating oil pumps	"M"	3	53	1	150	198	✓	203	98-94-90	"	- " -
Fuel oil transfer pump	"N"	1	18	1	35	68	✓	78	28	"	- " -
Ballast pump	"O"	1	58	1	185	225	✓	233	44	"	- " -
Bilge pumps	"P"	2	9	1	10	35	✓	38	10-16	"	- " -
Emergency bilge pump	"R"	1	16	1	35	62.5	✓	78	140	"	- " -
Fire extinguishing- and sanitary pumps	"S"	2	68	2	95	251	✓	300	120-128	"	- " -
Fire extinguishing and bath	"T"	1	68	2	95	251	✓	300	120	"	- " -
Small fuel oil transf.pumps	"V"	2	5	1	4	19.5	✓	21	20-24	"	- " -
Lubricating oil purifiers	"X"	2	8.5	1	10	32.5	✓	38	10-10	"	- " -
Fuel oil purifiers	"Y"	2	8.5	1	10	32.5	✓	38	10-10	"	- " -
Exhaust gas economiser circulating pumps	"AK"	2	2.5	1	2.5	10.3	✓	13	50-40	"	- " -
Condenser cool.water pump	"AM"	1	3	1	2.5	12.5	✓	13	30	"	- " -
Hydrofor pumps salt water	"HA"	2	6	1	6	23.5	✓	29	24-20	"	- " -
Hydrofor pumps fresh water	"HD"	2	6	1	6	23.5	✓	29	12-16	"	- " -
Sprinkle pump	"ML"	1	72	2	95	253	✓	300	108	"	- " -
Sanitary discharge pumps	"MU"	6	11	1	16	44.2	✓	48	60-20-72 20-100-130	"	- " -
Turning motors	"UB"	2	12	1	16	49	✓	48	32-14	"	- " -
Cargo refrigerating machinery compressors	"UF"	3	34	1	95	127	✓	150	66-60-50	"	- " -
Cargo refrigerating mchy cooling water pump	"UG"	1	7	1	6	27	✓	29	16	"	- " -
Cargo refrigerating machinery fans		3	4.5	1	4	18	✓	21	40-40-55	"	- " -
Provision refrigerating machinery compressors	"UK"	2	14	1	25	54	✓	63	12-16	"	- " -
Provision refrig.mchy cooling water pump	"UL"	1	2.6	1	2.5	11	✓	13	24	"	- " -
Traverse boards for the main engines	"XY"	2	4	1	4	17	✓	21	50-32	"	- " -
Lift blocks for the auxiliary engines	"XZ"	3	1.35	1	1.5	5.7	✓	7	14-20-30	"	- " -
Filling pump for the sprinkle tank	"VA"	1	4	1	6	16.6	✓	29	50	"	- " -
Engine room fans		2	12.5	1	16	48	✓	48	20-20	"	- " -
Engine room fans		5	10	1	10	36.5	✓	38	20-30-40 50-40	"	- " -
Life boat winches		4	16	1	25	63	✓	63	20-30- -50-60	"	- " -
Motors for watertight doors on D-deck		2	2	1	2.5	10.1	✓	13	30-40	"	- " -
Windlass motors		2	70	1	185	258	✓	273	260-260	"	- " -
Winches I & II, starboard		2	39	1	150	197	✓	280	174	"	- " -
Winches I & II, port		2	39	1	150	197	✓	280	146	"	- " -
Winches III		2	39	1	150	197	✓	280	162	"	- " -
Winches IV		2	39	1	150	197	✓	280	180	"	- " -
Winches V & VI, starboard		2	39	1	150	197	✓	280	188	"	- " -
Winches V & VI, port		2	39	1	150	197	✓	280	174	"	- " -
Capstans		2	50	1	120	186	✓	193	260-260	"	- " -
Steering gear motors		2	45	1	120	174	✓	175	260-260	"	- " -

The Electrical Equipment is installed in accordance with the approved plans and the requirements of the Rules.  
 All Insulated Conductors are guaranteed to have been tested at the maker's works as specified in the Rules.  
 The foregoing is a correct description.

*[Signature]*  
 AKTIEBOLAGET GÖTAVERKEN

Electrical Engineers. Date 24<sup>th</sup> Febr. 1948

**COMPASSES.**

Minimum distance between electric generators or motors and standard compass ..... About 7 mtr.

Minimum distance between electric generators or motors and steering compass ..... " 6 "

The nearest cables to the compasses are as follows:—

A cable carrying ..... 20 ..... Ampères ..... 16 ..... feet from standard compass ..... 15 ..... feet from steering compass.

A cable carrying ..... 1 ..... Ampères ..... 10 ..... feet from standard compass ..... 9 ..... 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 ..... every ..... course in the case of the standard compass, and ..... 0 ..... degrees on ..... every ..... course in the case of the steering compass.

*[Signature]*  
 AKTIEBOLAGET GÖTAVERKEN

Builder's Signature. Date 24<sup>th</sup> Febr. 1948

Is this installation a duplicate of a previous case ..... No ..... If so, state name of vessel .....

**General Remarks** (State quality of workmanship, whether insulation tests, etc., have been made, opinions as to class, etc.) .....

This electrical equipment has been fitted in accordance with the Rules and approved plans.  
 The workmanship and materials are good. Generators above 100 KW. have been inspected by the Stockholm Surveyors during construction and testing, and Makers' test certificates of the 40 KW. emergency generator and of the electric motors intended for essential services are attached.  
 The installation has been megger tested throughout, examined under full working conditions and found satisfactory.

*Noted. Sent 7/4/48*

Total Capacity of Generators ..... 1000 ✓ ..... Kilowatts.

The amount of Fee	Got. ac. Kr. 1360:00	When applied for, ..27/2... 19.48.
	Skm. ac. Kr. 340:00	
Travelling Expenses (if any)	Kr. 110:00	When received ..... 19.---
	Skm. ac.	

*[Signature]*  
 Surveyor to Lloyd's Register of Shipping.

Committee's Minute ..... **FRI. 9 APR 1948** .....

Assigned ..... *[Signature]* .....  
*In unil. sent J.E. Appl-*

The Surveyors are requested not to write on or below the space for Committee's Minute.