

Report on Electrical Equipment.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

Received at London Office 28 NOV 1949

Date of writing Report 14th Nov. 1949. When handed in at Local Office 24th Nov. 1949. Port of Gothenburg.

Survey held at Gothenburg. Date, First Survey 1st September. Last Survey 3rd November 1949. (Number of Visits 28)

No. in Reg. Book.

35473 on the Motor Tanker "A. N. G. L. O. M. A. E. R. S. K." Tons {Gross 11647 Net 6825

Built at Gothenburg. By whom built Erikshergs Mek. Varkstads AB. Yard No. 388. When built 1949.

Owners A/S D/S Svendborg & D/S af 1912 A/S. Port belonging to Copenhagen.

Electrical Installation fitted by Elektriska A.-B. A. E. G. Generators ~~Coleman~~ No. 168476-77. When fitted 1949. Radar ~~Subsonic~~ Yes.

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

Have plans been submitted and approved Yes. System of Distribution Two wire. Voltage of supply for Lighting 110.

Heating 110. 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 Engine room floor, port side, fore and aft. Steam genera-

tor on a platform in ER. 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 in the 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 Sindanyo. if of synthetic insulating material is it an Approved Type Yes. 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 circuit breaker

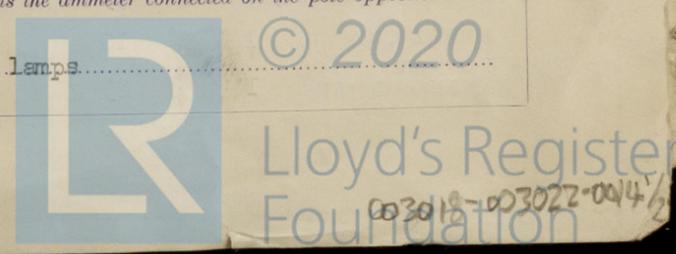
with overload and reversed current trips and a single pole equaliser switch.

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 7.

ammeters 4. 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 and earth lamps.



Switches, Circuit Breakers and Fuses, are they as per Rule Yes are the fuses an approved type Yes are all fuses labelled as 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 Yes state maximum fall of pressure between bus bars and any point under maximum load Permit. are the ends of all cables having a sectional area of 0.04 square inch and above provided with soldering sockets Yes Are paper insulated and varnished cambric insulated cables sealed at the exposed ends Yes with insulating compound Yes 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 Yes State how the cables are supported and protected Supported by metal clips. All cables lead covered. Main cables armoured or steel wire braided.

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 effectually bushed Yes and with what material Lead **Alternative Lighting**, are the groups of lights in the engine Yes room arranged as per Rule Yes **Emergency Supply**, state position In the steering engine room aft 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 is an automatic indicator fitted Yes **Secondary Batteries** are they constructed and fitted as per Rule Yes are they adequately ventilated Yes

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 Gaslight piping and flame-proof fittings.

and where are the controlling switches fitted In officers' accommodation midship 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 Yes **Motors**, are all motors constructed and installed as per Rule Yes and placed in well-ventilated compartments in which inflammable gases cannot accumulate and free from damage from water, steam and oil Yes if situated near unprotected combustible material state minimum distance from same horizontally Yes and vertically Yes

Have motors of 100 BHP and over been inspected by the Surveyors during manufacture and testing Yes Have certificates of test for motors under 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 Yes **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 Yes are all fuses of the 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 flameproof type Not supplied **Spare Gear**, if the vessel is for open sea service have spares been provided as per Rule Yes are they suitably stored in dry situations Yes **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 Fuel.
MAIN	2	140	220	637	400	Heavy oil engines	Diesel oil Above 150° F.	
STEAM GENERATOR	1	35	110	318	550	Steam engine	---	
EMERGENCY	1	10	110	92	1200	Heavy oil engine	Diesel oil Above 150° F.	
ROTARY TRANSFORMER	1	25	110	227	1650	Electric motor	---	

GENERATOR CABLES.

DESCRIPTION	KILOWATTS	CONDUCTORS		MAXIMUM CURRENT IN AMPERES		APPROX. LENGTH (lead plus return feet).	INSULATED WITH	HOW PROTECTED.
		No. In Parallel Per Pole	Sectional Area Sq. mm.	In the Circuit	Rule			
MAIN GENERATOR	140	4	150	637 ✓	812	40	Rubber	Lead covered & armoured.
" " EQUALISER		4	150		812	40	"	" "
STEAM ENGINE DRIVEN GENERATOR	35	2	120	318 ✓	350	20	"	" "
" " " " EQ		2	120		350	20	"	" "
EMERGENCY GENERATOR	10	1	50	92 ✓	99	10	"	" "
ROTARY TRANSFORMER: MOTOR	38 HP	1	95	142 ✓	150	15	"	" "
" " GENERATOR	25	1	185	227 ✓	233	25	"	" "

MAIN DISTRIBUTION CABLES.

AUX. SWITCHBOARDS AND SECTION BOARDS	No.	Sectional Area Sq. mm.	MAXIMUM CURRENT IN AMPERES	APPROX. LENGTH (lead plus return feet).	INSULATED WITH	HOW PROTECTED.	
Steering engine room	1	95	160 ✓	150	80	Rubber	Lead covered & armoured.
Ventilation fans aft	1	10	35 ✓	38	80	"	" "
Ventilation fans bridge	1	2.5	12 ✓	13	200	"	" "
Ventilation fans galley	1	2.5	10 ✓	13	85	"	" "
Ventilation fans engine room	1	4	15 ✓	21	40	"	" "
Purifiers	1	10	40 ✓	38	35	"	" "
Hydrofors	1	10	30 ✓	38	70	"	" "

LIGHTING AND HEATING, ETC., CABLES.

DESCRIPTION	No.	Sectional Area Sq. mm.	MAXIMUM CURRENT IN AMPERES	APPROX. LENGTH (lead plus return feet).	INSULATED WITH	HOW PROTECTED.	
WIRELESS	1	16	35 ✓	48	220	Rubber	Lead covered & armoured
NAVIGATION LIGHTS	1	2.5	5 ✓	13	250	"	" "
LIGHTING AND HEATING							
Heating, lower bridge	1	50	100 ✓	99	225	"	" "
Water heaters	1	50	100 ✓	99	40	"	" "
Suez searchlight	1	35	80 ✓	78	325	"	" "
Light forward pump room	1	10	35 ✓	38	200	"	" "
Light bridge	1	16	50 ✓	48	230	"	" "
Light engine room	1	10	35 ✓	38	70	"	" "
Light accommodation aft	1	10	35 ✓	38	80	"	" "

MOTOR CABLES.

ALL IMPORTANT MOTORS TO BE ENUMERATED.	No.	B. H. P.	Sectional Area Sq. mm.	MAXIMUM CURRENT IN AMPERES	APPROX. LENGTH (lead plus return feet).	INSULATED WITH	HOW PROTECTED.		
Main cooling water pumps	2	58	1	185	210 ✓	233	70	Rubber	Lead covered & armoured.
Aux. cooling water pump	1	4.2 KW	1	4	16.7 ✓	21	20	"	" "
Lubricating oil pumps	2	65	1	185	235 ✓	233	70	"	" "
Starting air compressors	2	55	1	185	200 ✓	233	80	"	" "
Ballast pump	1	18	1	35	68 ✓	78	20	"	" "
Transfer pump	1	14	1	25	53 ✓	63	20	"	" "
Refrigerating machinery, prov.	2	3	1	2.5	13.3 ✓	13	80	"	" "
Turning motor	1	12	1	50	96 ✓	99	40	"	" "
Workshop motor	1	3	1	6	25.5 ✓	29	20	"	" "
Purifiers	3	2.4 KW	1	2.5	13.2 ✓	13	30	"	" "
Hydrofor pumps	2	2	1	4	15.2 ✓	21	70	"	" "
Cooling water pump for refr. machinery	1	1.5	1	1.5	7 ✓	7	30	"	" "

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.

ELEKTRISKA AKTIEBOLAGET A E G
 FILIAL GÖTEBORG

Eric Sjögren Electrical Engineers. Date 17.11.1949

COMPASSES.

Minimum distance between electric generators or motors and standard compass 8 Metres.

Minimum distance between electric generators or motors and steering compass 5 Metres.

The nearest cables to the compasses are as follows:—

twin
 A/cable carrying 2.5 Ampères 6 feet from standard compass 4 feet from steering compass.

twin
 A/cable carrying 0.3 Ampères 4 feet from standard compass 4 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.

ERIKSBERGS MEK. VERKSTADS A.-B.
 GÖTEBORG

Anders Sjögren Builder's Signature. Date 19.11.1949

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 electric installation has been fitted in the vessel under my inspection and has been tested and found satisfactory.

..... The workmanship is good and the Rule requirements have been complied with.

..... Lloyd's and Makers' certificates in respect of generators and motors are attached.

Total Capacity of Generators 325 Kilowatts.

The amount of Fee Kr. 1280:—
 Travelling Expenses (if any) Kr. ---

When applied for, 24/11.19.49
 When received 19.

Anders Sjögren
 Surveyor to Lloyd's Register of Shipping.

Committee's Minute TUES. 20 DEC 1949

Assigned *In amil see 85. Rpt.*

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