

Report on Electrical Equipment.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

Received at London Office 29 MAY 1946

Date of writing Report 20th May 46. When handed in at Local Office 22nd May 46. Port of Malmö.

No. in Survey held at Malmö Date, First Survey 15th March Last Survey 9th May 1946
Reg. Book suppl. (Number of Visits) 18

39732 on the Single Screw Motor Tanker "SECURUS" Tons ^{Gross} 8615
_{Net} 5137

Built at Malmö By whom built Kockums M. V. A. B. Yard No. 286 When built 1946

Owners Rudolf A. B. Palmgrens Port belonging to Stockholm

Electrical Installation fitted by Kockums M. V. A. B. Contract No. ✓ When fitted 1946

Is vessel fitted for carrying Petroleum in bulk Yes. 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 110

Heating 110 v 220 Power 220 Direct or Alternating Current, Lighting Direct Power Direct 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 pole. 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 Main: One on each side in motor space. Aux. steam driven: - One 2nd deck in motor space, port side. 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

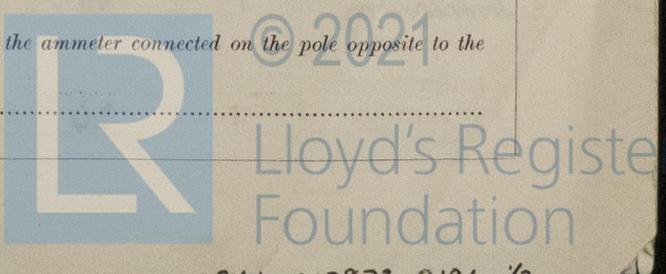
Switchboards, where are main switchboards placed In front of motor space, port side. are they in accessible positions, free from inflammable gases and acid fumes Yes, are they protected from mechanical injury and damage from water, steam and oil Yes, if situated near unprotected combustible material state distance from same horizontally ✓ and vertically ✓, what insulation material is used for the panels Main - Steel, 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 circuit breaker with overload and res. current trips and a single pole equaliser switch

and for each outgoing circuit A double pole linked 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 8

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. meters.



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 *Less than allowed in Sec. 4* 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. Protected where necessary.*

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, are the groups of lights in the engine and boiler rooms arranged as per Rule *Yes* Emergency Supply, state position *Yes* and method of control *Yes*

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 *Lamps contained in flameproof fittings and cables led in gastight tubing*

and where are the controlling switches fitted *Indicating outside those spaces* are all fittings suitably ventilated *Yes* are all fittings and accessories constructed and installed as per Rule *Yes* Searchlight Lamps, No. of *Yes* whether fixed or portable *Yes* 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 *None* 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 *None* 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 *Yes* 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	100	230	435	350	Heavy oil engines.	Heavy oil. Above 150° F.	
Auxiliary	1	25	230	114	600	Steam engine.		
EMERGENCY ROTARY TRANSFORMER	1	20	115	174	1850			

GENERATOR CABLES.

DESCRIPTION	KILOWATTS	CONDUCTORS		MAXIMUM CURRENT IN AMPERES		APPROX. LENGTH (lead plus return)	INSULATED WITH	HOW PROTECTED.
		No. in Parallel Per Pole	Sectional Area of Strands, of sq. mm.	In the Circuit	Rule			
MAIN GENERATOR	100	2	95	425	480	max. 38	Paper	Lead covered & armoured
" " EQUALISER		2	95			" 38	"	"
Auxiliary generator	25	1	35	114	125	31	"	"
EMERGENCY GENERATOR								
ROTARY TRANSFORMER: MOTOR	24	1	50	125	160	68	"	"
" " GENERATOR	20	1	95	174	240	60	"	"

MAIN DISTRIBUTION CABLES.

AUX. SWITCHBOARDS AND SECTION BOARDS								
B1a, B1b	1	25	max. 38	100	max. 60	Paper	Lead covered & armoured.	
B2	1	10	26	37	120	Bankers	"	"
B3a, B3b	2	50	max. 38	98	max. 170	"	"	"
B3a1.	1	6	7	28	114	"	"	"
B5	1	50	36	98	256	"	"	"
C1	1	10	55	58	43	Paper	"	"
C2	1	6	25	27	62	52	Bankers	"
C5	1	50	124	160	86	Paper	"	"

LIGHTING AND HEATING, ETC., CABLES.

WIRELESS	C3	1	16		48	180	Bankers	Lead covered & armoured.
NAVIGATION LIGHTS	B4	1	6	2	28	200	"	"
LIGHTING AND HEATING								
Marl head lights		1	1.5	0.4	8	max. 60	"	"
Side lights		1	1.5	0.4	8	40	"	"
Prop light		1	1.5	0.4	8	260	"	"
Compass lights		1	1.5	0.4	8	max. 220	"	"
Cooking		2	10	114	116	9	Paper	"
Water heaters		1	1.5	3.3	8	max. 40	Bankers	"
" " heaters		1	1.5	6.6	8	30	"	"

MOTOR CABLES.

ALL IMPORTANT MOTORS TO BE ENUMERATED.	No.	B.H.P.						
Bridge pump	1	7.5	1	10	29	37	54	Bankers
Bridge & auxiliary pump	1	8	1	10	31.5	37	48	"
Circ. sea water pump	2	26	1	25	92	100	max. 64	Paper
Circ. sea water pump for aux. eng.	1	5.4	1	6	21.8	28	38	Bankers
Langine turning gear	1	14.3	1	10	57.5	58	105	Paper
Lubricating oil pump	2	35.5	1	50	123	160	68	"
Oil fuel transfer pump	1	5	1	6	19.6	28	44	Bankers
Cool. water pump for motor	2	1	1	1.5	4.5	8	max. 28	"
Ind. oil separator	1	3.5	1	4	15	22	32	"
Ind. " "	2	3.5	1	4	15	22	max. 27	"
Water compressor	1	6	1	10	24	37	62	"
Sharing gear	2	15	1	16	59	80	max. 110	Paper
Water cooler motor	1	3	1	4	12.2	22	64	Bankers
Lift block	1	5.1	1	6	23	28	50	"
Hot water pump	1	2.5	1	2.5	10.3	15	32	"
Hot " "	1	2.5	1	2.5	10.3	15	33	"
Circ. pump for ext. gas econ.	1	0.4	1	1.5	1.3	8	7	"

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.

Nils E. Frumling Electrical Engineers. Date *20th May 1946*

COMPASSES.

Minimum distance between electric generators or motors and standard compass *to engine room to bridge.*
 Minimum distance between electric generators or motors and steering compass *to engine room to bridge.*

The nearest cables to the compasses are as follows:—

A cable carrying *abt. 2* Ampères *9* feet from standard compass *7* feet from steering compass.

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

KOCKUMS
 MEKANISKA VERKSTADS AKTIEBOLAG

Henrik Hederberg Builder's Signature. Date *20th May 1946*

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.).....

*The above described electrical equipment installations has been fitted onboard motor vessel in accordance with the Rules, approved plans and instructions and has been tested with satisfactory results.
 The workmanship and materials are good.*

*Noted
 HKM 21.6.46*

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

Total Capacity of Generators *225* ✓ Kilowatts.

The amount of Fee *Mmm. Kr. 665:-* { When applied for, *22.5* 19*46*.
Skmm. Kr. 166:- {
 Travelling Expenses (if any) *Kr. 40:-* { When received 19.....
Skmm.

A. Barring
 Surveyor to Lloyd's Register of Shipping.

Committee's Minute **FRI. 28 JUN 1946**

Assigned *See F.E. machy. rpt.*

