

REPORT ON ELECTRICAL EQUIPMENT.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

Received at London Office 10 SEP 1941

Date of writing Report 7th June 41. When handed in at Local Office 10th June 41. Port of Malmö.
 No. in Survey held at Malmö. Date, First Survey 14th Oct. 1940 Last Survey 21st Feb. 1941.
 Reg. Book. M/T "MALMÖHUS" (Number of Visits 21.)
 on the Tons { Gross 10232 1/2
 Net 6185 1/2
 Built at Malmö By whom built Hockmors M. V. A. B. Yard No. 226 When built
 Owners Tralleborgs Angf. Mga Aktieab. Port belonging to Tralleborg.
 Electrical Installation fitted by Hockmors M. V. A. B. Contract No. When fitted
 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. yes

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

Heating 110 & 220 Power 220 Direct or Alternating Current, Lighting Direct Power Direct If Alternating Current state frequency yes Prime Movers,

has the governing been tested and found efficient when the whole load is suddenly thrown on and off no Are turbine emergency governors fitted with a

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

if not compound wound state distance between generators yes and from switchboard yes 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

Positive 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: - 1 on each side in motor space. Aux: - On

2nd deck 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 yes and vertically yes, 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 yes and vertically yes, what insulation

material is used for the panels Main steel, 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 yes 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

Generators: - A double pole circuit breaker with overload and rev. 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 7

ammeters 4 voltmeters yes 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.



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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 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 No. 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 ✓, state maximum fall of pressure between bus bars and any point under maximum load Not yet tested, 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 ✓ with insulating compound ✓ or waterproof insulating tape ✓. 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 ✓. 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 ✓ and method of control ✓. 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 ✓, 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 Lamps contained in gastight fittings and cables led in gastight tubing. and where are the controlling switches fitted Wholly outside these spaces, are all fittings suitably ventilated Yes, are all fittings and accessories constructed and installed as per Rule Yes. Searchlight Lamps, No. of ✓, whether fixed or portable ✓, are their fittings as per Rule ✓. 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 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 ✓ and vertically ✓. Have motors of 100 BHP and over been inspected by the Surveyors during manufacture and testing No motor over 100 BHP. 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 ✓. 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 Not yet tested.

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	120	230	522.5	250	Heavy oil engines.	Heavy oil.	Above 150° F.
Harbour	1	90	230	409	575	Heavy engine.		
EMERGENCY ...								
ROTARY TRANSFORMER								

GENERATOR CABLES.

DESCRIPTION.	KILOWATTS.	CONDUCTORS.		MAXIMUM CURRENT IN AMPERES.		APPROX. LENGTH (lead plus return <u>feet</u>).	INSULATED WITH.	HOW PROTECTED.
		No. in Parallel Per Pole.	Sectional Area of <u>each</u> conductor sq. mm.	In the Circuit.	Rule.			
MAIN GENERATOR ...	120	3	185	522.5	696	max 36	Rubber	Lead covered and steel tap armoured.
" " EQUALISER ...		3	150	-	-	36	"	"
Harbour generator	90	2	185	409	464	30	"	"
EMERGENCY GENERATOR ...								
ROTARY TRANSFORMER: MOTOR	31	1	70	120	125	12	"	"
" " GENERATOR ...		1	150	174	200	8	"	"

MAIN DISTRIBUTION CABLES.

AUX. SWITCHBOARDS AND SECTION BOARDS ...							
K.	1	70	100	125	14	Rubber	Lead covered and steel tap armoured.
F1.	1	95	125	150	16	"	"
F2.	1	6	14.5	30	11.4	"	"
G.	1	2.5	42	62	55	"	"
H.	1	2.5	53	62	65	"	"
J.	1	10	39	40	13	"	"
S.	1	2.5	36	62	35.6	"	"

LIGHTING AND HEATING, ETC., CABLES.

WIRELESS ...	1	10		40	180	Rubber	Lead covered and steel tap armoured.
NAVIGATION LIGHTS ...	1	16	3	48	22.4	"	"
LIGHTING AND HEATING							
Main head light.	1	1.5	0.4	8	max 156	"	"
Side light.	1	1.5	0.4	8	30	"	"
Prop. light.	1	1.5	0.4	8	240	"	"
Morse light.	1	1.5	0.4	8	16	"	"
Compass light.	1	1.5	0.4	8	14	"	"
Cooking.	1	50	94	100	94	"	"
Oil heaters.	1	50	68	100	max 82	"	"
Water heaters.	1	1.5	2.3	8	2.8	"	Lead covered.

MOTOR CABLES.

ALL IMPORTANT MOTORS TO BE ENUMERATED.	No.	B.H.P.						
Bridge pump.	1	5	1	6	19.5	30	46	Rubber. Lead covered and steel tap armoured.
Bridge & auxiliary pump.	1	8	1	10	32	40	54	"
Circ. sea water pumps.	2	33	1	95	12.5	150	max 62	"
" " " " aux. eng.	1	5.5	1	6	21.5	30	60	"
Circ. fresh water pumps.	2	26	1	50	99	100	max 74	"
Engine room pump.	1	14	1	25	57	62	76	"
Lubricating oil pumps.	2	10	1	16	38	48	76	"
Oil fuel transfer pump (eng. room).	1	6	1	6	24	30	38	"
" " " " (ford pump room).	1	6	1	10	23	40	240	"
Cooling pumps for motor.	1	1	1	2.5	43	15	100	"
Ind. oil separators.	2	3	1	4	12	22	max 50	"
Ind. oil separator.	1	3	1	4	12	22	90	"
Cooling compressor.	1	11	1	16	44	48	74	"
Workshop motor.	1	3	1	4	12.5	22	74	"
Lift block.	1	6	1	6	23.6	30	50	"
Wash water pump.	1	2.2	1	4	9.5	22	66	"
Lathe " " " "	1	2.2	1	4	9.5	22	66	"
Vent. fans in eng. room.	2	2.5	1	4	14	22	max 70	"
Turning gear.	1	15	1	2.5	58	62	128	"



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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.

Eine Sundgren

Electrical Engineers.

Date *7 juni 1941*

COMPASSES.

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

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

The nearest cables to the compasses are as follows:—

A cable carrying *abt. 3* Ampères *9* feet from standard compass *6* 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 *No*

Has the effect of switching on and off circuits, motors and other electro-magnetic apparatus within the vicinity of the compasses been noted *No*

The maximum deviation due to electric currents was found to be degrees on course in the case of the standard compass, and degrees on course in the case of the steering compass.

E. Sundgren Builder's Signature.

Date *7th June 1941*

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 installation has been fitted onboard under survey in accordance with the Rules, approved plans and instructions.

The workmanship and the materials are good.

To complete survey:-

The electrical installation to be megger tested and tested under working conditions. The maximum fall of pressure between bus bars and any point under maximum load to be noted.

It cannot be stated when the survey will be completed.

Noted
L.H.
11/9/41.

Total Capacity of Generators *330* Kilowatts.

The amount of Fee *Mms. £761:90* When applied for, *10th June, 1941.*
£169:10
Travelling Expenses (if any) *£25:50* When received,19.....

Adundin, A. Boring.
Surveyor to Lloyd's Register of Shipping.

Committee's Minute *TUE. 23 SEP 1941*

Assigned *See Memo. Ref 2001*