

REPORT ON ELECTRICAL EQUIPMENT.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

Received at London Office

3 - NOV 1939

Date of writing Report 26/10 1939 When handed in at Local Office 30/10 1939 Port of **Gothenburg**
 No. in Survey held at **Gothenburg** Date, First Survey 18th Sept. Last Survey 12th Oct. 1939
 (Number of Visits 15)
 Suppl. 3 on the **Single Screw M/S PONTFIELD** Tons { Gross
 40560 Net
 Built at **Gothenburg** By whom built **Eriksbergs M.V.A.B.** Yard No. 298 When built 1939
 Owners **Hunting & Son, LTD** Port belonging to **Newcastle**
 Electric Light Installation fitted by **Allmänna Svenska Elektriska AB.** Contract No. - When fitted 1939
 Is the Vessel fitted for carrying Petroleum in bulk **Yes**

System of Distribution **Parallel system, Two wire.** ✓
 Pressure of supply for Lighting 110 ✓ 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** ✓
 Have certificates for generators under 100 kw. been supplied and approved **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 **on both sides in the engine room** ✓, is the ventilation 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 - 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** ✓
 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 **in 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 - and - are they constructed wholly of durable, non-ignitable non-absorbent materials **of marble** ✓, 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 generator a double pole circuit breaker with overload and reversed current trips and a single pole equaliser switch. For each outgoing circuit two fuses and a double pole switch.** ✓
 Are turbine driven generators fitted with emergency trip switch as per rule **No turbine dr. gen.** ✓ cupboards or compartments containing switchboards composed of fire-resisting material or lined with approved material **hard wood** ✓ Instruments on main switchboard 5 ✓ ammeters 5 ✓
 voltmeters - synchronising device for paralleling purposes. For compound machines is the ammeter connected on the opposite pole to equaliser connection **yes** ✓
 Earth Testing, state what means are provided at the main switchboard for indicating the state of the insulation of the system **One ohm-meter** ✓
 Switches, Circuit Breakers and Fusible Cut-outs, **One ohm-meter** ✓ have the reversed do these comply with the requirements of the Rules **yes** ✓ are the fusible cutouts of an approved type **yes** ✓

current protection devices been tested under working conditions **yes** are all fuses labelled as per Rule **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 & twin** are the cables insulated and protected as per Tables IV, V, X, XI, XII or XIII of the Rules **yes**

If the cables are insulated otherwise than as per Rule, are they of an approved type **-** **Fall of Pressure**, state maximum between bus bars and any point of the installation under maximum load **below allowance permitted** **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 of the exposed ends of the conductor protected from moisture by being suitably sealed with insulating compound **-** or waterproof insulating tape **-** **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 laid under machines or floorplates **yes** if so, are they adequately protected **yes**

Are cables in machinery spaces, galleys, laundries, bathrooms and lavatories lead covered or run in conduit **lead covered** **Supp. by metal clips**. All power cables lead cov. & arm. Light cables in cabins lead cov. **Armoured or steelwireplate**.
 If cables are run in wood casings, are the casings and caps secured by screws **yes** are the cap screws of brass **yes** are the cables run in separate grooves **no** 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** **Earthing connections** are not jointed, section-cables are jointed in porcelain boxes and boxes as per Rule.

Joints in Cables, state if any, and how made, insulated, and protected **yes**

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 lashed **yes** state the material of which the bushes are made **of lead**

Earthing Connections, state what earthing connections are fitted and their respective sectional areas **Earthing connections fitted to all.**
lead covering and armouring of cables 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 **-**

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 **-** are they ventilated as per Rule **-**

Fittings, are all fittings on weather decks ~~or in 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 **no** how are the cables led **-**

where are the controlling switches situated **-**

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 **-**

Searchlight Lamps, No. of **1** whether fixed or portable **-** 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 **yes** if not of this type, state distance of the combustible material horizontally or vertically above the motors **-** and **-**

have machines of over 100 BHP been inspected by the Surveyors during manufacture and testing **none** have certificates for all motors for essential services been supplied and approved **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 fitted 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 approved for use in dangerous spaces **yes** **Spare Gear**, if the vessel is for open sea service have spares been supplied as per Rule **yes** are they suitably stored in dry situations **yes**

PARTICULARS OF GENERATING PLANT.

DESCRIPTION OF GENERATOR.	No. of	RATED AT				DRIVEN BY	WHERE DRIVEN BY AN INTERNAL COMBUSTION ENGINE.	
		Kilowatts.	Volts.	Amps.	Revs. per Min.		Fuel Used.	Flash Point of Fuel.
MAIN	1	100	220	455	350	Diesel oil engine	Diesel oil	Above 150° F
AUXILIARY	1	12	220	545	500	Steam engine		
EMERGENCY								
Main	1	82	220	373	400	Diesel oil engine	Diesel oil	Above 150° F
ROTARY TRANSFORMER	1	14	110	127	1380	Electric motor, 220 V		

GENERATOR, LIGHTING AND HEATING CONDUCTORS.

DESCRIPTION.	CONDUCTORS.		COMPOSITION OF STRAND.		TOTAL MAXIMUM CURRENT. AMPERES.		Approximate Length. (Lead and Return.)	Insulated with	HOW PROTECTED.
	No. per Pole.	Total Nominal Area per Pole Sq. mm.	No.	Diameter.	Circuit.	Rule.			
MAIN GENERATOR ...	3	1x95	37	1.81	455	450	38	Rubber	Lead covered and armoured
EQUALISER CONNECTIONS ...	3	1x95	37	1.81		450			
AUXILIARY GENERATOR ...	1	25	19	1.29	54.5	62.5	60	"	"
ROTARY MAIN GENERATOR	3	1x70	19	2.17	373	369	28	"	"
ROTARY MOTOR	1	1x50	19	1.83	87.5	100	14	"	"
TRANSFORMER / GENERATOR...	1	1x95	37	1.81	127	149.5	16	"	"
ENGINE ROOM...									
BOILER ROOM...									
AUXILIARY SWITCHBOARDS ...									
Light Distr. Boards									
Deck Light Forw.	1	4	7	0.86	6	22	260	"	"
Midships	1	10	7	1.35	25	38	190	"	"
Officers Acc.	1	4	7	0.86	15	22	45	"	"
Crews Acc.	1	4	7	0.86	14	22	40	"	"
ACCOMMODATION ...									
Navigation	1	2.5	7	0.67	4	16	210	"	"
Engine Room	1	4	7	0.86	18	22	4	"	"
Fans	1	2.5	7	0.67	8	16	65	"	"
WIRELESS	1	16	7	1.73	-	50	186	"	"
SEARCHLIGHT ...	1	16	7	1.73	-	50	280	"	"
MASTHEAD LIGHT ...									
SIDE LIGHTS ...									
COMPASS LIGHTS ...									
POOP LIGHTS ...									
CARGO LIGHTS									
HEATERS	1	25	19	1.29	55	62.5	65	"	"
Lubr. Oil	1	10	7	1.35	36	38	65	"	"

MOTOR CONDUCTORS.

DESCRIPTION.	No. of Motors.	CONDUCTORS.		COMPOSITION OF STRAND.		TOTAL MAXIMUM CURRENT. AMPERES.		Approximate Length. (Lead and Return.)	Insulated with	HOW PROTECTED.
		No. Per Pole.	Total Nominal Area per Pole Sq. mm ^{inches}	No.	Diameter.	In Circuit.	Rule.			
BALLAST PUMP	1	1	35	19	1.53	69.5	78	60	Rubber	Lead covered and armoured
Self Cool HEAT EXCHANGER PUMP	1	1	2.5	7	0.67	3.45	16	50	"	"
Self Cool - Compr. HEAT EXCHANGER COMP.	1	1	10	7	1.35	31	38	44	"	"
EMERGENCY BILGE PUMP										
SANITARY PUMP ^{Bilge-}	1	1	10	7	1.35	31.5	38	35	"	"
CIRC. SEA WATER PUMPS	2	1	70	19	2.17	240	246	15	"	"
^{Lubr. Oil Pumps} CIRC. FRESH WATER PUMPS	1	1	35	19	1.53	76	78	30	"	"
AIR COMPRESSOR										
FRESH WATER PUMP										
ENGINE TURNING GEAR	1	1	10	7	1.35	31.7	38	75	"	"
ENGINE REVERSING GEAR										
LUBRICATING OIL PUMPS										
OIL FUEL TRANSFER PUMP	1	1	10	7	1.35	29	38	30	"	"
WINDLASS										
WINCHES, FORWARD										
^{Aux. Cool W. Pump} WINCHES, AFT	1	1	4	7	0.86	8.7	22	44	"	"
^{Teller}	1	1	2.5	7	0.67	8.5	16	45	"	"
STEERING GEAR—										
(a) MOTOR GENERATOR										
(b) MAIN MOTOR										
WORKSHOP MOTOR	1	1	4	7	0.86	13	16	34	"	"
VENTILATING FANS										
^{Lubr. Oil Sep.}	1	1	2.5	7	0.67	10.2	16	56	"	"
^{Fuel Oil Sep.}	1	1	2.5	7	0.67	8.3	16	48	"	"

The Electrical Equipment is installed in accordance with the approved plans.
All Insulated Conductors are guaranteed to withstand the immersion and resistance tests specified in the Rules.
The foregoing is a correct description.

Alm Leirberg

Electrical Engineers.

Date 27. 10. 39.

COMPASSES.

Minimum distance between electric generators or motors and standard compass

About 10 metres.

Minimum distance between electric generators or motors and steering compass

18. " 1078 "

The nearest cables to the compasses are as follows:—

A cable carrying Ampères feet from standard compass 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

Has the effect of switching on and off circuits, motors and other electro-magnetic apparatus within the vicinity of the compasses been noted

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.

Eriksbergs Mek. Verkstads Aktiebolag

Gunnar Engberg

G. Engberg

Builder's Signature.

Date 28. 10. 39.

At.

Is this installation a duplicate of a previous case ☒ Yes If so, state name of vessel m.s. "SOLÖR"

General Remarks (State quality of workmanship, opinions as to class, &c.)

The electric installation of this vessel has been fitted on board under my inspection and has been tested and found satisfactory.

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

Lloyd's certificate of the 100 Kw. generator and the Makers' certificates in respect of the remaining generators and motors are attached.

*Noted
Rus
8. 11. 39*

Total Capacity of Generators 194 Kilowatts.

The amount of Fee Got. A/c. Kr. 679:00

When applied for.

30/10 39

Skm. a/c /23. 1. 39/ 117:00

Travelling Expenses (if any) x " : 23:00

When received.

23. 11. 39

Skm. A/c.

Committee's Minute

TUE. 14 NOV 1939

Assigned

See for 7E 12634

F. Agelén

Surveyor to Lloyd's Register of Shipping.



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