

REPORT ON ELECTRICAL EQUIPMENT.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

27 JAN 1937

Date of writing Report 21st Jan, 1937 When handed in at Local Office 25th Jan, 1937 Port of *Malmö*
 No. in Survey held at *Landskrona* Date, First Survey 8th Dec, 1936 Last Survey 18th Jan, 1937
 Reg. Book *87486* on the *Single Screw Steamer "BELE"* (Number of Visits 7)
 Built at *Landskrona* By whom built *Öresundsvarvet* Yard No. 42 Tons { Gross 1237
 Owners *Stockholms Rederiaktiebol. Lnea* Port belonging to *Stockholm* Net 638
 Electric Light Installation fitted by *Öresundsvarvet* & *Aspa* Contract No. ✓ When fitted 1937
 Is the Vessel fitted for carrying Petroleum in bulk *No*

System of Distribution *Two wire system* ✓

Pressure of supply for Lighting 110 volts, Heating ✓ volts, Power 110 volts.

Direct or Alternating Current, Lighting *Direct* ✓ Power *Direct* ✓

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 ✓, is an adjustable regulating resistance fitted in

series with each shunt field ✓ Have certificates of test results for machines under 100 kw. been submitted and

approved *Enclosed* ✓ Have machines over 100 kw. been inspected by the Surveyors during manufacture and testing ✓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 *Starboard side in the engine room* ✓, is the ventilationin 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 generatorsin metallic contact *Yes* ✓ Main Switch Boards, where placed *Starboard side 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 mechanicalinjury 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 *Basaltite* ✓, 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 othernon-hygroscopic insulating material, and the slab similarly insulated from its framework *Yes* ✓, is the non-hygroscopic insulating material of an approvedtype *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 ofomnibus 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 ofswitches *No* ✓

Generator: — A double pole circuit breaker with overload and reversed current protective device

Circuits: — As per plans approved 30-12-1936

Are turbine driven generators fitted with emergency trip switch as per rule ✓ Are cupboards or compartments containing switchboards composed of

fire-resisting material or lined with approved material *Yes* ✓ Instruments on main switchboard 2 ✓ ammeters 1

voltmeters synchronising device for paralleling purposes. For compound machines is the ammeter connected on the opposite pole to equaliser connection

Earth Testing, state what means are provided at the main switchboard for indicating the state of the insulation of the system

Lamps ✓ Switches, Circuit Breakers and Fusible Cut-outs,do these comply with the requirements of the Rules *Yes* ✓ are the fusible cutouts of an approved type ✓ have the reversed

current protection devices been tested under working conditions *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 *Main single* are the cables insulated and protected as per Tables IV, V, X or XI of the Rules *Yes*
If the cables are insulated otherwise than as per Rule, are they of an approved type *Yes* Fall of Pressure, state maximum between bus bars and any point of the installation under maximum load *3 volts* 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 at the exposed ends of the conductor protected from moisture by being suitably sealed with insulating compound *Yes* or waterproof insulating tape *Yes* 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 in machinery spaces, galleys, laundries, bathrooms and lavatories lead covered or run in conduit *Lead cov. & armoured*
Support and Protection of Cables, state how the cables are supported and protected *Supported by metal clips*
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 *Yes* 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*
Joints in Cables, state if any, and how made, insulated, and protected *No joints in main cables. Branches - Metal joint boxes.*
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 bushed *Yes* state the material of which the bushes are made *Lead*
Earthing Connections, state what earthing connections are fitted and their respective sectional areas *Yes*
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 *Yes*
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 *Yes*
Fittings, are all fittings on weather decks, in stokeholds and 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 *Yes*
are any fittings placed in spaces where inflammable or explosive dust or gases are liable to be present, if so, how are they protected *Yes*
how are the cables led *Yes*
where are the controlling switches situated *Yes*
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 *Yes*
Searchlight Lamps, No. of *Yes*, whether fixed or portable *Yes*, are their fittings as per Rule *Yes*
Arc Lamps, other than searchlight lamps, No. of *Yes*, are their live parts insulated from the frame or case *Yes*, 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 *Yes* and *Yes*
have machines of over 100 BHP been inspected by the Surveyors during manufacture and testing *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 filled 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 type approved by the Home Office *Yes*
Spare Gear, if the vessel is for open sea service have spares been supplied as per Rule *Yes*

PARTICULARS OF GENERATING PLANT.									
DESCRIPTION OF GENERATOR.	No. of	RATED AT				DRIVEN BY	WHERE DRIVEN BY AN INTERNAL COMBUSTION ENGINE.		
		Kilowatts.	Volts.	Amperes.	Revs. per Min.		Fuel Used.	Flash Point of Fuel.	
MAIN ...	1	6	110	54.5	600	Steam engine			
AUXILIARY ...									
EMERGENCY ...									
ROTARY TRANSFORMER									

GENERATOR, LIGHTING AND HEATING CONDUCTORS.									
DESCRIPTION.	CONDUCTORS.		COMPOSITION OF STRAND.		TOTAL MAXIMUM CURRENT. AMPERES.		Approximate Length. (Lead and Return) feet mtr.	Insulated with	HOW PROTECTED.
	No. per Pole.	Total Nominal Area per Pole Sq. mm. mm.	No.	Diameter.	Circuit.	Rule.			
MAIN GENERATOR ...	1	25	7	2.13	54.5	65	4	Rubber	Lead covered & steel tap arm.
EQUALISER CONNECTIONS ...									
AUXILIARY GENERATOR...									
EMERGENCY GENERATOR									
ROTARY TRANSFORMER } MOTOR GENERATOR...									
ENGINE ROOM...	1	1.5	7	0.52	6	8	max. 82	Rubber	Lead covered & steel tap arm.
BOILER ROOM...	1	1.5	7	0.52	6	8	20	"	"
AUXILIARY SWITCHBOARDS A	1	6	7	1.05	10	25	84	"	"
B	1	6	7	1.05	15	25	34	"	"
C	1	10	7	1.35	25	40	50	"	"
D	1	2.5	7	0.67	10	15	68	"	"
E	1	10	7	1.05	25	40	28	"	"
ACCOMMODATION ...	1	1.5	7	0.52	max. 5	8	max. 34	"	"
WIRELESS Telephone	1	6	7	1.05	-	25	34		
SEARCHLIGHT ...	1	2.5	7	0.67	3	15	max. 120	Rubber	Lead covered & steel tap arm.
MASTHEAD LIGHT ...	1	2.5	7	0.67	3	15	28	"	"
SIDE LIGHTS ...	1	1.5	7	0.52	0.5	8	12	"	"
COMPASS LIGHTS ...	1	2.5	7	0.67	3	15	130	"	"
POOP LIGHTS ...	1	2.5	7	0.67	max. 8	15	max. 94	"	"
CARGO LIGHTS ...									
ARC LAMPS ...									
HEATERS ...									

MOTOR CONDUCTORS.										
DESCRIPTION.	No. of Motors.	CONDUCTORS.		COMPOSITION OF STRAND.		TOTAL MAXIMUM CURRENT. AMPERES.		Approximate Length. (Lead and Return) feet mtr.	Insulated with	HOW PROTECTED.
		No. Per Pole.	Total Nominal Area per Pole Sq. Ins.	No.	Diameter.	In Circuit.	Rule.			
BALLAST PUMP ...										
MAIN BILGE LINE PUMPS ...										
GENERAL SERVICE PUMP ...										
EMERGENCY BILGE PUMP ...										
SANITARY PUMP ...										
CIRC. SEA WATER PUMPS ...										
CIRC. FRESH WATER PUMPS...										
9.8. COMPRESSOR 0.7 H.P. ...	1	1	2.5	7	0.67	8	15	50	Rubber	Lead covered & steel tap arm.
FRESH WATER PUMP ...										
ENGINE TURNING GEAR...										
ENGINE REVERSING GEAR ...										
LUBRICATING OIL PUMPS ...										
OIL FUEL TRANSFER PUMP...										
WINDLASS ...										
WINCHES, FORWARD ...										
WINCHES, AFT ...										
STEERING GEAR—										
(a) MOTOR GENERATOR...										
(b) MAIN MOTOR ...										
WORKSHOP MOTOR ...										
VENTILATING FANS ...										

All Conductors are of annealed copper conforming to British Standard Specification No. 7 (or International Electro-technical Commission Publication No. 28).

The Insulated Conductors are guaranteed to withstand the immersion and resistance tests specified in the Rules.

The foregoing is a correct description.

Ken Gaudy

Electrical Engineers.

Date *23rd Jan. 1937*

COMPASSES.

Distance between electric generators or motors and standard compass

Distance between electric generators ~~or motors~~ and steering compass *From engine room to bridge.*

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.

ÖRESUNDSVARVET

AKTIEBOLAG

to a. Ridell

Builder's Signature.

Date *23rd Jan. 1937*

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

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

*The above described electrical equipment installation has been fitted onboard under survey in accordance with the Rules and instructions and has been tested and found satisfactory.
The workmanship and the materials are good.*

Total Capacity of Generators *6* Kilowatts.

The amount of Fee ...

\$Fr.

109.20

When applied for,

25th Jan. 1937

Travelling Expenses (if any) £

:

:

When received,

3.2.37

A. Sundin

Surveyor to Lloyd's Register of Shipping.

Committee's Minute

TUE 9 FEB 1937

Assigned

See other F.E. report



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Foundation