

REPORT ON ELECTRICAL EQUIPMENT.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

Received at London Office 23 MAR 1936

Date of writing Report 12/3 1936 When handed in at Local Office 10 Port of Copenhagen
 No. in Survey held at Odense Date, First Survey 16/1 Last Survey 14/3 1936
 Reg. Book. 38431 on the Single S.S. Motor Tank Vessel "HENNING MERSE" (Number of Visits 6)
 Tons { Gross 9386
 Net 5839
 Built at Odense By whom built Odense Maskitsvaerk Yard No. 57 When built 1936
 Owners 1/5 of 1912 of P. Svendborg, 4/5 Port belonging to Copenhagen
 Electric Light Installation fitted by P. Dansk Elektriske Kompagni Contract No. - When fitted 1936
 Is the Vessel fitted for carrying Petroleum in bulk Yes.

System of Distribution 2 conductor insulated 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 No, 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 None.
 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 MAIN: in the motor room; EMERGENCY: in the poop space ✓, 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 motor room; for emergency: in poop space ✓
 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 Yes.
 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 Yes., 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 Generator: One 26 pole linked circuit breaker & 1 fuse on each pole; outgoing circuits do. do. ✓
 Are turbine driven generators fitted with emergency trip switch as per rule Yes. Are cupboards or compartments containing switchboards composed of fire-resisting material or lined with approved material Yes. Instruments on main switchboard 1 ammeters 1 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 1 set of earth 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 Yes. have the reversed -

current protection devices been tested under working conditions ☒ **Joint Boxes, Section and Distribution Boards**, is the construction, protection, insulation, material, and position of these as per Rule ☒ **Cables**: Single, twin, concentric, or multicore ☒ are the cables insulated and protected as per Tables IV, V, X or XI of the Rules ☒ 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 ☒ **Cable Sockets**, are the ends of all cables having a sectional area of 0.04 square inch and above provided with soldering sockets ☒ **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 ☒ 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 ☒ Are cables in machinery spaces, galleys, lavatories, bathrooms and lavatories lead covered or run in conduit ☒ **Support and Protection of Cables**, state how the cables are supported and protected ☒ **Refrigerated Chambers**, are the cables and fittings in accordance with the special requirements ☒ **Joints in Cables**, state if any, and how made, insulated, and protected ☒ **Watertight Glands and Deck Tubes**, are all cables passing through decks and watertight bulkheads provided with deck tubes or watertight glands ☒ **Bushes in Beams and Non-watertight Partitions**, where unarmoured cables pass through beams and non-watertight partitions, are the holes efficiently bushed ☒ state the material of which the bushes are made ☒ **Earthing Connections**, state what earthing connections are fitted and their respective sectional areas ☒ are their connections made as per Rule ☒ **Alternative Lighting**, are the groups of lights in the propelling machinery space arranged as per Rule ☒ **Emergency Supply**, state position and method of control of the emergency supply and how the generator is driven ☒ **Navigation Lamps**, are these separately wired ☒ controlled by separate switch and separate fuses ☒ are the fuses double pole ☒ are the switches and fuses grouped in a position accessible only to the officers on watch ☒ has each navigation lamp an automatic indicator as per Rule ☒ **Secondary Batteries**, are they constructed and fitted as per Rule ☒ **Fittings**, are all fittings on weather decks, in stokeholds and engine rooms and wherever exposed to drip or condensed moisture, watertight ☒ 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 ☒ are any fittings placed in spaces where inflammable or explosive dust or gases are liable to be present, if so, how are they protected ☒ **Heating and Cooking Appliances**, are they constructed and fitted as per Rule ☒ are air heaters constructed and fitted as per Rule ☒ **Searchlight Lamps**, No. of ☒ whether fixed or portable ☒ are their fittings as per Rule ☒ **Arc Lamps**, other than searchlight lamps, No. of ☒ are their fittings as per Rule ☒ **Motors**, are their working parts readily accessible ☒ are the coils self-contained and readily removable for replacement ☒ are the brushes, brush holders, terminals and lubricating arrangements as per Rule ☒ are the motors placed in well-ventilated compartments in which inflammable gases cannot accumulate and clear of all inflammable material ☒ are they protected from mechanical injury and damage from water, steam or oil ☒ are their axes of rotation fore and aft ☒ 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 ☒ 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 ☒ **Control Gear and Resistances**, are the generator field and motor speed regulators, starters and controllers constructed and fitted as per Rule ☒ **Lightning Conductors**, where lightning conductors are required, are these fitted as per Rule ☒ **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 ☒ are all fuses of the fitted cartridge type ☒ are they of an approved type ☒ If portable lamps for use in dangerous spaces are supplied, are they of a self-contained, battery-fed type approved by the Home Office ☒ **Spare Gear**, if the vessel is for open sea service have spares been supplied as per Rule ☒

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	16	110	146	600	1-cyl. steam engine		
AUXILIARY ...								
EMERGENCY ...	1	7	110	63.7	550	1-cyl. 250SA oil engine	crude oil	> 150° F
ROTARY TRANSFORMER								

GENERATOR, LIGHTING AND HEATING CONDUCTORS.

DESCRIPTION.	CONDUCTORS.		COMPOSITION OF STRAND.		TOTAL MAXIMUM CURRENT.		Approximate Length. (Lead and Return.) Feet.	Insulated with	HOW PROTECTED.
	No. per Pole.	Total Nominal Area per Pole Sq. In.	No.	Diameter.	Circuit.	Rule.			
MAIN GENERATOR ...	1	120	37	2.03	146	177	8	rubber	lead covered
EQUALISER CONNECTIONS ...									sheath wire
AUXILIARY GENERATOR ...									
EMERGENCY GENERATOR ...	1	35	19	1.53	63.7	77	3		
ROTARY TRANSFORMER ...									
ENGINE ROOM ...	1	6	7	1.05	16	28	40		
BOILER ROOM ...									
AUXILIARY SWITCHBOARDS ...	1	50	19	1.83	93	98	40		
FOR LIGHT NAVIGATION	1	6	7	1.05	5	28	210		
ACCOMMODATION ...									
AFT	1	6	7	1.05	30	28	8		
AMIDSHIPS	1	16	7	1.70	40	48	170		
WIRELESS ...	1	16	7	1.70	18	48	210		
SEARCHLIGHT ...	1	15	1	1.38	1	10	100		
MASTHEAD LIGHT ...	1	15	1	1.38	1	10	20		
SIDE LIGHTS ...	1	15	1	1.38	25	10	7		
COMPASS LIGHTS ...	1	15	1	1.38	1	10	200		
POOP LIGHTS ...									
CARGO LIGHTS ...									
ARC LAMPS ...									
HEATERS ...									

MOTOR CONDUCTORS.

DESCRIPTION.	No. of Motors.	CONDUCTORS.		COMPOSITION OF STRAND.		TOTAL MAXIMUM CURRENT.		Approximate Length. (Lead and Return.) Feet.	Insulated with	HOW PROTECTED.
		No. per Pole.	Total Nominal Area per Pole Sq. In.	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 ...										
AIR COMPRESSOR ...										
FRESH WATER PUMP ...	1	1	35	19	1.53	54	77	70	rubber	lead covered
ENGINE TURNING GEAR ...										
ENGINE REVERSING GEAR ...	1	1	6	7	1.05	24	28	27		sheath wire
LUBRICATING OIL PUMPS ...	1	1	6	7	1.05	24	28	25		amoured.
OIL FUEL TRANSFER PUMP ...										
WINDLASS ...										
WINCHES, FORWARD ...										
WINCHES, AFT ...										
STEERING GEAR—										
(a) MOTOR GENERATOR ...										
(b) MAIN MOTOR ...	1	1	10	7	1.35	128	38	40		
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.

Dansk Elektrisk
Anstalts

Syngby.

Electrical Engineers.

Date 14-3-1936.

COMPASSES.

Distance between electric generators or motors and standard compass 30'

Distance between electric generators or motors and steering compass 24'

The nearest cables to the compasses are as follows:—

A cable carrying 5 Ampères 11 feet from standard compass 7 feet from steering compass.

A cable carrying 0.5 Ampères 8" 8" feet from standard compass 8" feet from steering compass.

A cable carrying 18 Ampères 30 feet from standard compass 24 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 any course in the case of the standard compass, and 0 degrees on any course in the case of the steering compass.

FR. OENSE STAALSKIBSVÆRFT

VED A. P. MØLLER

John Møller

Builder's Signature.

Date 17.3.36

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 electric light & power installation as above described has been fitted in accordance with the Society's Rules, the approved plans and the requirements contained in the Secretary's letter E dated 31/1/1936. The material used is of good description throughout and the workmanship of high quality. The dynamo has been tried under working conditions and found to work satisfactorily and the installation so far as completed found in order.

In order to complete the survey the electric light & power installation in the engine room, in which only temporary connections have been fitted for the contemplated voyage, requires to be completed and tested as per Rules. This the Owners intend to have done at Hamburg to which port the vessel proceeded from Odense on account of lock out, and the Society's Local Secretary has been informed accordingly.

Noted
Jm
28.3.36

Total Capacity of Generators 23 Kilowatts.

The amount of Fee ... H. 425.60

Travelling Expenses (if any) £

When applied for,

20.3.1936.

When received.

30.3.36

Ch. Clipperton
Surveyor to Lloyd's Register of Shipping.

Committee's Minute

FRI. 27 MAR 1936

Assigned

See other J.E.

Open. 9869



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Foundation