

REPORT ON ELECTRIC FITTINGS.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

Received at London Office

22 AUG 1926

Date of writing Report 9/8 1926 When handed in at Local Office 19 Port of Copenhagen

No. in Survey held at Odense Date, First Survey 25/6 Last Survey 31/7 1926
 Reg. Book. 41200 on the Single Screw Motor vessel "TOLEDO" (Number of Visits 6)

Built at Odense By whom built Odense Skibskonstruktørværkt. Yard No. 23 When built 1926
 Owners M/S Dankport I, IV, V & VI Port belonging to Sønsborg
 Electric Light Installation fitted by Dansk Elektricitetsselskab Contract No. Odense When fitted 1926

System of Distribution Two conductor insulated system

Pressure of supply for Lighting 110 volts, Heating 220 volts, Power 220 volts.

Direct or Alternating Current, Lighting direct Power direct

If alternating current system, state frequency of periods per second yes

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 rating yes, are they compound wound yes
 are they over compounded 5 per cent. yes, if not compound wound state distance between each generator yes

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

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 generator in engine room; auxiliary generator on main deck in engine casing
 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 yes
 and yes, are the generators protected from mechanical injury and damage from water, steam or oil yes
 are their axes of rotation fore and aft yes; except auxiliary light generator (only to be used in port)

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 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 yes
 are they constructed wholly of durable, non-ignitable non-absorbent materials yes, is all insulation of high dielectric strength and of permanently high insulating resistance yes, if semi-insulating material is used, are all conducting parts insulated from the slab with mica or micawile or other non-hygroscopic insulating material, and the slab similarly insulated from its framework 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, proportion of omnibus bars yes, individual fuses to voltmeter, pilot or earth lamp yes, connections of switches yes

Main Switchgear, description of switchgear for each generator and each outgoing circuit, and arrangement of equalizer switches for each generator:
a 240 pole circuit breaker as per Rule 3 para. 3 clause (f); for each outgoing circuit:
a 240 pole linket switch and a fuse on each pole.

Instruments on main switchboard 6 ammeters 3 voltmeters yes synchronising device for paralleling purposes.

Earth Testing, state what means are provided at the main switchboard for indicating the state of the insulation of the system 2 Ohmmeters
2 earth amps for 220 volts, 2 do. for 110 volts.

Switches, Circuit Breakers and Fusible Cut-outs, do these comply with the requirements of the Rules 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 twin & single are the cables insulated and protected as per Tables IV ~~or~~ of the Rules 4/10.

Fall of Pressure, state maximum between bus bars and any point of the installation under maximum load 3 Volts

Cable Sockets and other connections, are the ends of all cables having a sectional area of 0.04 square inch and above provided with soldering sockets

Paper Insulated Cables. *If cables are paper covered, is the dielectric at the exposed ends of the conductor protected from moisture by being suitably sealed with insulating compound* ✓

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 *N/A.*

Support and Protection of Cables, state how the cables are supported and protected *armoured cables supported by clips, steel wire braided cables let through iron tubes.*

If cables are run in wood casings, are the casings and caps secured by screws ☒, are the cap screws of brass ☒, are the cables run in separate grooves ☒. If armoured and lead covered cables are secured by metal clips are the clips secured ☒ in the wall ☒ the

Refrigerated Chambers, if lights are fitted, are the cables and fittings in accordance with the special requirements

Joints in Cables, state if any, and how made, insulated, and protected *No joints in cables*

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 y/s. state the material of which the bushes are made lead.

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 110

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

Secondary Batteries, are they constructed and fitted as per Rule

Fittings, are all fittings on weather decks, in stokeholds and engine rooms and where 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

...., how are the cables led

where are the controlling switches situated

Searchlight Lamps, No. of Non. whether fixed or portable 2, are their fillings as per Rule

Are Lamps, other than searchlight lamps, No. of None, are their live parts insulated from the frame or case ☒, are their fittings as per Rule ☒

Motors, are their working parts readily accessible yes, are the coils self-contained and readily removable for replacement yes.

are the brushes, brush holder s, terminals and lubricating arrangements as per Rule 110, are the motors, placed in well-ventilated compartments in which inflammable gases cannot accumulate and clear of all inflammable material 110.

are they protected from mechanical injury and damage from water, steam or oil *yes* are their axes of rotation fore and aft *yes, except deep tank*

✓✓✓, if not of this type, state distance of the combustible material horizontally or vertically above the motor. ✓ and ✓

Control Gear and Resistances, are the generator field and motor speed regulators, starters and controllers constructed and fitted as per Rule *M.S.*

Lightning Conductors, where lightning conductors are required, are these fitted as per Rule..... *Non*

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 ✓

If portable lamps for use in dangerous spaces are supplied, are they of a type approved by the Home Office?

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 ...	3	66 ✓	220	300	400	3 avail. Diesel oil engine	crude oil	above 150° F
AUXILIARY	1	10 ✓	110	91	450	Semi Diesel oil engine	- " -	- " -
EMERGENCY ...								
ROTARY TRANSFORMER	1	12 ✓	110	110	1200	Electromotor		

LIGHTING AND HEATING CONDUCTORS.

Ref. No.	DESCRIPTION.	No. of Conductors.	Effective Area of each Conductor. Sq. Inch.	COMPOSITION OF STRAND.		Total Maximum Current Amperes.	Approximate Length. (Lead and Return.) Feet.	Insulated with	HOW PROTECTED.
				No.	Diameter Inch.				
	MAIN GENERATOR... ..	2	20 ✓	61	2.37	300	10-40-80	vulcanized rubber	All cables are lead covered
	EQUALISER CONNECTIONS	2	20 ✓	61	2.37	=	10-40-80	" "	" "
	AUXILIARY GENERATOR	2	50 ✓	19	1.83	91	44	" "	" "
	EMERGENCY GENERATOR								shut wire armour or
	ROTARY TRANSFORMER... ..								lead covered
	AUXILIARY SWITCHBOARDS								shut wire braid and (where frame missing) let through iron rib
	ENGINE ROOM	2	6 ✓	7	1.05	9	4	- - -	" "
	BOILER ROOM								" "
	ACCOMMODATION								" "
	AFT	2	6 ✓	7	1.05	10	110	- " -	" "
	DECKHOUSE I	2	6 ✓	7	1.05	10	80	- " -	" "
	-- II --	2	6 ✓	7	1.05	10	50	- " -	" "
	NAVIGATION LIGHT	2	2.5 ✓	7	0.67	2	85	- " -	" "
	WIRELESS	2	6 ✓	7	1.05	10	140	- " -	- " -
	SEARCHLIGHT								" "
	MASTHEAD LIGHT... ..	2	1.5 ✓	1	1.38	0.3	135	" "	" "
	SIDE LIGHTS	2	1.5 ✓	1	1.38	0.3	40	" "	" "
	COMPASS LIGHTS	2	1.5 ✓	1	1.38	0.15	6	" "	" "
	PUMP LIGHTS	2	1.5 ✓	1	1.38	0.3	150	" "	" "
	CARGO LIGHTS	2	1.5 ✓	48	0.2	1	40	" "	" "
	ARC LAMPS								" "
	HEATERS	2	35 ✓	19	1.53	50	16	" "	" "
	OIL FILTER..								" "
	BAKING OVEN	2	6 ✓	7	1.05	23	62	" "	" "

MOTOR CONDUCTORS.

Ref. No.	DESCRIPTION.	No. of Motors.	Effective Area of each Conductor. Sq. Ins.	COMPOSITION OF STRAND.		Total Maximum Current. sq. ins.	Approximate Length. (Local and Return.) Feet. Wg.	Insulated with	HOW PROTECTED.
				No.	Diameter.				
	BALLAST PUMP	1	28 ✓	7	2.13	60	50	vulcanized india rubber	all the cables are shut wire armoured
	MAIN BILGE LINE PUMPS								
	GENERAL SERVICE PUMP								
	EMERGENCY BILGE PUMP }	1	10 ✓	7	1.35	36	54		shut wire braided
	SANITARY PUMP								and where necessary lay the three iron pipes.
	CIRC. SEA WATER PUMPS								
	CIRC. FRESH WATER PUMPS								
	CO ₂ COMPRESSOR	1	6 ✓	7	1.05	28	32		
	DEEP TANK FRESH WATER PUMP	1	16 ✓	7	1.40	48	36		
	ENGINE TURNING GEAR	1	6 ✓	7	1.05	32	50		
	ENGINE REVERSING GEAR								
	COOLING WATER AND LUBRICATING OIL PUMPS }	2	50 ✓	19	1.83	96	28-30		(all cables are lead covered.)
	OIL FUEL TRANSFER PUMP	1	10 ✓	7	1.35	36	20		
	WINDLASS	1	120 ✓	34	2.03	170	140		
	WINCHES, FORWARD	24	35 ✓	19	2.52	120	135		
	WINCHES, AFT	1	35 ✓	19	2.52	120	120		
	STEERING GEAR—								
	(a) MOTOR GENERATOR	1	50 ✓	19	1.83	91	45		
	(b) MAIN MOTOR	1	40 ✓	19	2.16	90	11		
	WORKSHOP MOTOR	1	3 ✓	2	1.38	16	28		
	VENTILATING FANS								
	MOTOR-GENERATOR	1	25 ✓	7	2.13	6	15		
	WINCHES AMIDSHIPS	2	50	19	1.83	2x60	40		

All Conductors are of annealed copper conforming to British Standard Specification No. 7.

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

The foregoing is a correct description.

Dan. & Elektro. Compagni

Address

Symberg

Electrical Engineers.

Date 18-8-1926.

COMPASSES.

Distance between electric generators or motors and standard compass 30 m.

Distance between electric generators or motors and steering compass 30 m.

The nearest cables to the compasses are as follows:—

A cable carrying 2 Ampères 3 m feet from standard compass 3 m feet from steering compass.

A cable carrying 11 Ampères 5 m feet from standard compass 6 m feet from steering compass.

A cable carrying 0.15 Ampères 25 cm feet from standard compass 25 cm 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?

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.

PR. ODENSE STAALSKIBSVÆRFT

VED A. P. MØLLER

Builder's Signature.

Builder's Signature.

Date 19-8-1926.

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 diagram and the requirements contained in the Secretary's letter & dated 4/5 26. The material used is of generally good description throughout and the workmanship good.

On completion the whole installation was tested under power working conditions and found satisfactory.

Permanently the vessel to have notation of "ELECTRIC LIGHT."

It is submitted that
this vessel is eligible for
THE RECORD. Elec. light.

W.D.
25/8/26

Total Capacity of Generators 208 Kilowatts.

The amount of Fee ... 12 = £ 18.32
... £ 6.72.34
Travelling Expenses (if any) £ — :
When applied for, 19
When received, 14.9.26

Chisholm
Surveyor to Lloyd's Register of Shipping.

FRI. 27 AUG 1926

Committee's Minute

Assigned

Elec. Light



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Foundation