

REPORT ON ELECTRIC FITTINGS.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

Received at London Office - 1 APR 1935

Date of writing Report 19/3 1935 When handed in at Local Office 10 Port of Copenhagen
 No. in Survey held at Odense Date, First Survey 3/1 Last Survey 12/3 1935
 Reg. Book. 90771 on the single screw motor tanker "PERNA" (Number of Visits 4)
 Tons { Gross 7984
 Net 4748
 Built at Odense By whom built Odense Haabstiboværft Yard No. 54 When built 1935
 Owners N.V. Petroleum Maats. "La Corona" Port belonging to S Gravenhage
 Electric Light Installation fitted by Dansk Elektricitetskompani Contract No. 1 When fitted 1935
 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 110 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 rating 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
 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

Position of Generators placed in the motor room, starboard side, floor level
 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

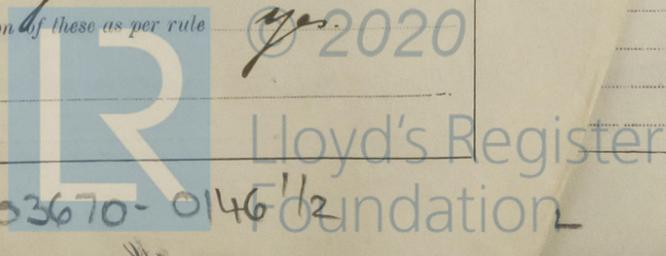
Earthing, are the bedplates and frames of the generating plant efficiently earthed Yes are the prime movers and their respective generators in metallic contact Yes
 Main Switch Boards, where placed in the starboard side of the motor room, near generators

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, if semi-insulating material is used, are all conducting parts insulated from the slab with mica or micaite 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:
One 2 pole linked switch and a fuse on each pole. Outgoing circuits:
One 2 pole linked switch and a fuse on each pole.
 Instruments on main switchboard 2 ammeters 2 voltmeters — 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 sets of earth lamps

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 *single* are the cables insulated and protected as per Tables IV or V of the Rules *yes*

Fall of Pressure, state maximum between bus bars and any point of the installation under maximum load *5 volts* *yes*

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 *yes*

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 *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*

Support and Protection of Cables, state how the cables are supported and protected *steel wire braided cables used, supported by galv. steel clips, on deck and elsewhere when found necessary laid in galv. steel tubes.*

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, if lights are fitted, 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*

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 *lamps inside pump room casings fitted in gas tight steel boxes with round glasses in how are the cables led from outside through casing side into lamp box through w. t. glands*

where are the controlling switches situated *on switch board in alleyway to saloon amidships*

Searchlight Lamps, No. of *1 (not supplied)*, whether fixed or portable *portable*, are their fittings as per Rule *yes*

Arc Lamps, other than searchlight lamps, No. of *0*, 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*

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*

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

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	1	16	110	146	390	1 imp. oil engine	crude oil	>150° F
AUXILIARY	1	16	110	146	390	1 imp. steam engine		
EMERGENCY								
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 Effective Area per Pole Sq. In.	Total Effective Area per Pole Sq. In. (Lead and Return.)	No.	Diameter.	In Circuit.	Rule.			
MAIN GENERATOR	1	95	19	2.52	146	147	6	india rubber	steel wire	
EQUIPMENT CONNECTIONS	2	95	19	2.52	146	147	8	"	braided lead covered, when necessary laid in steel tubes.	
AUXILIARY GENERATOR										
EMERGENCY GENERATOR										
ROTARY MOTOR TRANSFORMER GENERATOR										
ENGINE ROOM	1	10	7	1.35	25	38	16	"	"	
BOILER ROOM										
AUXILIARY SWITCHBOARDS										
Navigation FORE SHIP	1	10	7	1.35	11	38	170	"	"	
	1	16	7	1.70	13	48	190	"	"	
ACCOMMODATION										
AMIDSHIPS	1	16	7	1.70	45	48	150	"	"	
AFT	1	16	7	1.70	36	48	40	"	"	
(wall plug)	1	10	7	1.35	12	38	62	"	"	
WIRELESS	1	16	7	1.70	25	48	170	"	"	
SEARCHLIGHT	1	35	19	1.53		77	230	"	"	
MASTHEAD LIGHT	1	1.5	1	1.38	0.5	10	160	"	"	
SIDE LIGHTS	1	1.5	1	1.38	0.5	10	30	"	"	
COMPASS LIGHTS	1	1.5	1	1.38	0.5	10	16	"	"	
POOP LIGHTS	1	1.5	1	1.38	0.5	10	180	"	"	
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 Effective Area per Pole Sq. In.	Total Effective Area per Pole Sq. In. (Lead and Return.)	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											
ENGINE TURNING GEAR	1	1	35	19	1.53	80	77	30	india rubber	lead covered and steel wire braided, when necessary laid in steel tubes.	
ENGINE REVERSING GEAR											
LUBRICATING OIL PUMPS	1	1	4	7	0.85	20	22	20	"	"	
OIL FUEL TRANSFER PUMP											
WINDLASS											
WINCHES, FORWARD											
DRILLING MACHINE	1	1	4	7	0.85	14	22	20	"	"	
WINCHES, AFT											
TURNING LATHE	1	1	2.5	7	0.67	10	15	22	"	"	
STEERING GEAR											
(a) MOTOR GENERATOR											
(b) MAIN MOTOR											
WORKSHOP MOTOR	4	1	16	7	1.70	40	48	70	"	"	
VENTILATING FANS											
GRINDING MACHINE	1	1	6	7	1.05	14	28	23	"	"	

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.

Dansk Elektricitetscompagni

Aktieselskab. *Lynbyvej.*

Electrical Engineers.

Date 20 - 3 - 1935.

COMPASSES.

Distance between electric generators or motors and standard compass 21'

Distance between electric generators or motors and steering compass 15'

The nearest cables to the compasses are as follows:—

A cable carrying 11 Ampères 15 feet from standard compass 12 feet from steering compass.

A cable carrying 2 Ampères 10 feet from standard compass 4 1/2 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. *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.

PR. ODENSE STAALSKIBSVÆRFT
VED A. P. MØLLER

Builder's Signature.

Date 20. 3. 35

John Møller Andersen

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 and power installation as herein described has been fitted in accordance with the Society's Rules (with a slight deviation), the approved plans and the requirements contained in the Surveyor's letter E dated 21/1 & 4/2 1935.

The material used is of good description and the workmanship good, and on completion the whole installation was tested under full working power and in accordance with the Rules and found satisfactory.

Note by 4/4/35

Total Capacity of Generators 32 Kilowatts.

The amount of Fee ... *£ 575.20* When applied for, 29.3.19.35.

Travelling Expenses (if any) £ : : When received, 10.4.35 *ND* 12/4

Christoff
Surveyor to Lloyd's Register of Shipping.

PR. ODENSE STAALSKIBSVÆRFT
VED A. P. MØLLER

Committee's Minute **FRI. 5 APR 1935**

Assigned *see J. E. Machy*



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1m. 9. 30.—Transfer.
(The Surveyors are requested not to write on or below the space for Committee's Minute.)