

REPORT ON ELECTRIC FITTINGS.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

Received at London Office.....15 MAY 1929

Date of writing Report $\frac{3}{5}$

1929. When handed in at Local Office

19

Port of

Copenhagen

No. in Survey held at

Odense

Date, First Survey

4/2

Last Survey

27/4

1929

Reg. Book.

(Number of Visits.....10)

89097 on the *Star Line* No. 3 Ltd. "ABRAHAM LINCOLN"

Tons { Gross 5783.53

Net 3603.41

Built at

Odense

By whom built

Odense Staalskibsværft

Yard No.

32

When built

1928-9

Owners

J. B. Børcher (Fred. Olsen & Co.)

Port belonging to

Oslo

Electric Light Installation fitted by

J. Dansk Elektricitetskompani

Contract No.

When fitted

1929

Is the Vessel fitted for carrying Petroleum in bulk

No

System of Distribution

2 conductor insulated system

Pressure of supply for Lighting

110

volts, Heating

✓

volts, Power

220

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

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

placed in the motor room, port 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

on a platform in the forward end of the motor 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 marbl.

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 micanite 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

generators: one 266

pole circuit breaker with overload & reverse current trip and equalizer switch as per Part 3 par. 3.A. (f)
outgoing circuits: One 266 pole linked switch with a fuse on each pole.

Instruments on main switchboard

8

ammeters

5

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

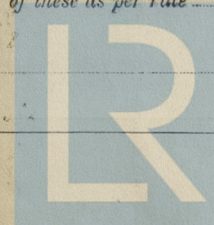
2 sets of earth lamps, one voltmeter fitted with Ohm-scale.

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



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Cables: Single, twin, concentric, or multicore *single & twin* 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 *1.5 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 *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 *armoured or steel wire braided cables used, supported by clips, in holds laid in galvanized iron tubes under upper deck.*

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 *no lamps in chambers.*

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 *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

where are the controlling switches situated *yes*.

Searchlight Lamps, No. of *yes*, whether fixed or portable *yes*, are their fittings as per Rule *yes*.

Are 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*, *except slow running cooling water pumps*.

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.	Amperes.	Revs. per Min.		Fuel Used.	Flash Point of Fuel.
MAIN ...	3	100	220	455	400	3-1/2 3-cyl. Diesel engines	ord. Diesel oil	above 150° F.
AUXILIARY ...								
EMERGENCY ...								
ROTARY TRANSFORMER	1	20	110	182	1500	30 HP. electric motor		

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. ins.	No.	Diameter.	In Circuit.	Rule.				
MAIN GENERATOR ...	1	475	71	2.60	455	457	44	44	india rubber	lead covered
EQUALISER CONNECTIONS ...		475	71	2.60		457	22		"	and
AUXILIARY GENERATOR ...										steel wire armoured.
EMERGENCY GENERATOR ...	1	50	19	1.83	100	100	39		"	"
ROTARY TRANSFORMER MOTOR ...	1	125	37	2.07	182	190	41		"	"
ENGINE ROOM ...										
BOILER ROOM ...										
AUXILIARY SWITCHBOARDS ...										
NAVIGATION LIGHT	1	2.5	7	0.67	1 1/2	15	136		"	"
ACCOMMODATION ...										
AFT	1	6	7	1.05	15	28	146		"	"
DECKHOUSE I	1	10	7	1.35	20	38	47		"	"
II	1	10	7	1.35	25	38	118		"	"
WIRELESS ...	1	10	7	1.35	10	38	139		"	"
SEARCHLIGHT ...										
MASTHEAD LIGHT ...	1	1.5	1	1.38	0.2	10	52		"	"
SIDE LIGHTS ...	1	1.5	1	1.38	0.2	10	31		"	"
COMPASS LIGHTS ...	1	1.5	1	1.38	0.2	10	17		"	"
POOP LIGHTS ...	1	1.5	1	1.38	0.2	10	178		"	"
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. ins.	No.	Diameter.	In Circuit.	Rule.			
BALLAST PUMP ...	1	1	25	7	2.13	50	63	56	india rubber	lead covered
MAIN BILGE LINE PUMPS	1	1	16	7	2.13	30	48	59	"	and
SANITARY GENERAL SERVICE PUMP ...										steel wire armoured.
EMERGENCY BILGE PUMP ...	1	1	6	7	1.05	17	28	76	"	
SANITARY PUMP ...	1	1	6	7	1.05	20	28	73	"	
CIRC. SEA WATER PUMPS	2	1	6	7	1.05	20	28	73	"	
CIRC. FRESH WATER PUMPS ...										
AIR COMPRESSOR ...	2	1	200	37	2.616	250	245	24	"	
FRESH WATER PUMP ...										
ENGINE TURNING GEAR ...	2	1	6	7	1.05	27	28	68	"	
ENGINE REVERSING GEAR ...										
COOLING WATER AND LUBRICATING OIL PUMPS	2	1	125	37	2.108	165	185	26	"	
OIL FUEL TRANSFER PUMP ...	1	1	25	7	2.13	50	63	53	"	
WINDLASS ...	1	1	50	37	2.27	175	205	161	"	steel wire braided
WINCHES, FORWARD ...	2	1	70 + 4	19 + 7	2.16 - 0.85	165	172	121	"	
	2	1	75 + 4	19 + 7	2.12 - 0.85	220	217	119	"	
	2	1	70 + 4	19 + 7	2.16 - 0.85	165	172	32	"	
	2	1	70 + 4	19 + 7	2.16 - 0.85	165	172	32	"	
WINCHES, AFT ...	2	1	70 + 4	19 + 7	2.16 - 0.85	165	172	103	"	
	1	1	70	19	2.16	110	150	141	"	
STEERING GEAR—										
(a) MOTOR GENERATOR ...	1	1	50	19	1.83	75	115	160	"	
(b) MAIN MOTOR ...	1	1	6	7	1.05	10	28	69	"	steel wire armoured.
WORKSHOP MOTOR ...	1	1	6	7	1.05	20	28	51	"	
VENTILATING FANS ...	2	1	6	7	1.05	20	28	36	"	
	2	1	6	7	1.05	10	28	58	"	
	2	1	25	7	2.13	53	63	42	"	
BRINE PUMPS	2	1	6	7	1.05	20	28	47	"	
	1	1	6	7	1.05	8.5	28	45	"	
FUEL OIL PURIFIER	1	1	2.5	7	0.67	10	15	28	"	
WATER ...	1	1	2.5	7	0.67	6.5	15	19	"	

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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.

Mr. Dansk Elektricitetscompagni

Lyngbyvej.

Electrical Engineers.

Date 7 - 5 - 1929.

COMPASSES.

Distance between electric generators or motors and standard compass 20'

Distance between electric generators or motors and steering compass 16'

The nearest cables to the compasses are as follows:—

A cable carrying 0.2 Ampères 11" feet from standard compass 11" feet from steering compass.

A cable carrying 1.4 Ampères 10 feet from standard compass 6 feet from steering compass.

A cable carrying 0.2 Ampères 12 feet from standard compass 5 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

John ...

Builder's Signature.

Date

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 above described has been fitted in accordance with the Society's Rules, the approved plan (as amended) and the requirements contained in the Surveyor's letter of 15/1/1929.

The material used for the installation is of good description throughout and the workmanship of high quality.

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

Recommend the vessel to have notation of ELECTRIC LIGHT in the Register Book.

It is submitted that
this vessel is eligible for
THE RECORD. — ELEC. LIGHT.

YRM
17.5.29

Total Capacity of Generators 300 Kilowatts.

The amount of Fee ... 16.70.9.80: { When applied for, 13.5.29.

Travelling Expenses (if any) £ : : { When received, 25.5.29.

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

WED. 22 MAY 1929

Committee's Minute

Assigned

Elec. Light



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