

# REPORT ON ELECTRICAL EQUIPMENT.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

1-9 NOV 1943

Received at London Office

Date of writing Report 29th Sept. 43 When handed in at Local Office 7th Oct. 1943 Port of Baltimore, Maryland  
 No. in Survey held at Baltimore, Maryland Date, First Survey 9th March Last Survey 26th August 1943  
 Reg. Book. 26236 on the S.S. "LEONARDO da VINCI" (Number of Visits.....)  
 Tons { Gross 7515  
 Net 4205  
 Built at Spezia By whom built Ansaldo San Giorgio Yard No. 192 When built 1925  
 Owners Ministry of War Transport Port belonging to Mombassa  
 Electric Light Installation fitted by - Contract No. - When fitted -  
 Is the Vessel fitted for carrying Petroleum in bulk No

System of Distribution 2-Wire  
 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 -, are they compound wound No  
 are they over compounded 5 per cent. -, if not compound wound state distance between each generator 30"  
 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 Have certificates of test results for machines under 100 kw. been submitted and approved No  
 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 In E. R. "D" deck 4 shunt machines p.s. and 1 compound machine s.s., 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 Not near and not near  
 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 Aft end of Generator flat p.s. "D" deck.  
 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 Not near and Not near, 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 -, 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 Normal, 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 1 - 2 pole circuit breaker and 1 2-throw 2 pole knife switch for each generator and 2 pole knife switch and fuses for each outgoing circuit.  
 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 5 ammeters 5  
 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 -  
 Lamp on each pole of each bus. 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 Yes

construction, protection, insulation, material, and position of these as per rule Yes

**Cables:** Single, twin, concentric, or multicore Single & Twin 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 -

any point of the installation under maximum load -

area of 0.04 square inch and above provided with soldering sockets Yes

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 -, or waterproof insulating tape Yes

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 Yes

**Support and Protection of Cables,** state how the cables are supported and protected cover plates and saddles, others in wood casings.

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 Yes, soldered eye sockets, varnished cambric and friction tapes.

**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 -

-, are their connections made as per Rule -

**Alternative Lighting,** are the groups of lights in the propelling machinery space arranged as per Rule Yes

position and method of control of the emergency supply and how the generator is driven Emergency Supply, state

Knave house p.s. "C" Deck, Double pole 2 throw

knife switch on adjacent switchboard, dynamo direct coupled to 4 cyl. Diesel Engine

**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 No

**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 -

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 -

are all fittings suitably ventilated -, are all switches and lampholders constructed wholly of non-ignitable, non-absorbent materials -

**Heating and Cooking Appliances,** are they constructed and fitted as per Rule Yes, are air heaters constructed and fitted as per Rule -

**Searchlight Lamps, No. of** 1, whether fixed or portable fixed, are their fittings as per Rule Yes

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

water, steam or oil Yes are their axes of rotation fore and aft No, 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 Not Near and Not Near

have machines of over 100 BHP been inspected by the Surveyors during manufacture and testing -

field and motor speed regulators, starters and controllers constructed and fitted as per Rule Yes

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 filled 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 Yes



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# 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 ...	4	30	110	273	3000	Turbine Coupled Direct	Shunt wound	
AUXILIARY ...	1	50	110	480	3000	" " "	Compound wound	
EMERGENCY ...	1	35	115	285	1150	4 cyl. Diesel Engine	Diesel	176°
ROTARY TRANSFORMER	-	-	-	-	-	-	-	-

## GENERATOR, LIGHTING AND HEATING CONDUCTORS.

DESCRIPTION.	CONDUCTORS.		COMPOSITION OF STRAND.		TOTAL MAXIMUM CURRENT. AMPERES.		Approximate Length. (Lead and Return.) Feet.	Insulated with	HOW PROTECTED.
	No. per Pole.	Total Nominal Area per Pole Sq. Ins.	No.	Diameter.	Circuit.	Rule.			
MAIN GENERATOR ...	1	.2745	37	.0973	273 ✓	350	16	Var. Camb.	Lead Covered and Armour
EQUALISER CONNECTIONS ...	-	-	-	-	-	-	-	-	-
AUXILIARY GENERATOR ...	1	.5100	61	.1032	480 ✓	530	60	Var. Camb.	Lead Covered and Armour
EMERGENCY GENERATOR	1	.2745	37	.0973	285 ✓	350	160	" "	" "
ROTARY Nav. (MOTOR TRANSFORMER) Off. a/c	1	.0829	19	.0745	18 ✓	109	480	" "	" "
2nd Class Bar	1	.0206	7	.0612	6 ✓	41	270	Rubber	" "
Engine Room	1	.0032	7	.0242	3 ✓	11.5	280	"	"
2nd Class Smoke Rm.	1	.0414	7	.0867	11 ✓	66	350	"	"
Boiler Room	1	.0829	19	.0745	25 ✓	160	300	"	"
Fwd. Cabins A Deck	1	.0206	7	.0612	15 ✓	41	320	"	"
AUXILIARY SWITCHBOARDS	1	.0414	7	.0867	5 ✓	66	250	"	"
1st Class Acc. p. aft	1	.0829	19	.0745	21 ✓	100	300	"	"
" " " s. "	1	.0051	7	.0305	14 ✓	16.5	390	"	"
Pantry p.s. "B" deck	1	.0051	7	.0305	7 ✓	16.5	310	"	"
1st Class Acc. p. fwd.	1	.0829	19	.0745	26 ✓	160	270	"	"
Emerg. Gen Rm.	1	.0130	7	.0486	13 ✓	31	180	"	"
Hospital	1	.0206	7	.0612	8 ✓	41	100	"	"
Accommodation ...	1	.0206	7	.0612	27 ✓	41	150	"	"
"C" Deck p.s.a.	1	.0051	7	.0305	14 ✓	16.5	120	"	"
"C" Deck Pantry	1	.0414	7	.0867	17 ✓	66	120	"	"
Engrs. Acc.	1	.0130	7	.0486	18 ✓	31	180	"	"
Fiddley Entrance	1	.0206	7	.0612	33 ✓	41	180	"	"
Officers Mess Rm.	1	.0829	19	.0745	44 ✓	100	180	"	"
Wireless	1	.0082	7	.0385	8 ✓	23	160	"	"
"C" Deck Acc. s.s.f.	1	.0082	7	.0385	13 ✓	23	140	"	"
SEARCHLIGHT	1	.0051	7	.0305	8 ✓	16.5	100	"	"
"C" Deck Acc. s.s.f.	1	.0206	7	.0612	33 ✓	41	180	"	"
MASTHEAD LIGHT	1	.0829	19	.0745	44 ✓	100	180	"	"
2nd Class s.s.a.	1	.0082	7	.0385	8 ✓	23	160	"	"
2nd Class p.s.a.	1	.0082	7	.0385	13 ✓	23	140	"	"
COMPASS LIGHTS	1	.0051	7	.0305	8 ✓	16.5	100	"	"
1st Class Acc. p. s.f.	1	.0082	7	.0385	13 ✓	23	140	"	"
BOILER LIGHTS	1	.0082	7	.0385	13 ✓	23	140	"	"
1st Class Acc. s.f.	1	.0082	7	.0385	13 ✓	23	140	"	"
Cargo LIGHTS	1	.0082	7	.0385	13 ✓	23	140	"	"
1st Class Acc. p.f.	1	.0082	7	.0385	13 ✓	23	140	"	"
AC LINES	1	.0051	7	.0305	8 ✓	16.5	100	"	"
1st Class Acc. s.f.	1	.0051	7	.0305	8 ✓	16.5	100	"	"
HEATERS	1	.0051	7	.0305	8 ✓	16.5	100	"	"

## MOTOR CONDUCTORS.

DESCRIPTION.	CONDUCTORS.		COMPOSITION OF STRAND.		TOTAL MAXIMUM CURRENT. AMPERES.		Approximate Length. (Lead and Return.) Feet.	Insulated with	HOW PROTECTED.
	No. of Motors.	No. Per Pole.	Total Nominal Area per Pole Sq. Ins.	No.	Diameter.	In Circuit.	Rule.		
Aux. Condensate Pump	1	1	.0206	7	.0612	25 ✓	41	120	Rubber Lead Cover & Armour
BALAST PUMP	1	1	.1659	19	.1055	45 ✓	209	90	Var. Camb.
Baggage Lift	1	1	.0082	7	.0385	5 ✓	23	300	Rubber
Main Bilge Pumps	1	1	.0082	7	.0385	5 ✓	23	300	Rubber
Bridge Deck Cabin Fans	1	1	.1659	19	.1055	160 ✓	209	320	"
GENERAL SERVICE PUMP	1	1	.1659	19	.1055	160 ✓	209	320	"
EMERGENCY BILGE PUMP	1	1	.0130	7	.0485	5 ✓	31	150	"
Cabin Fans "A" Dk.	1	1	.0082	7	.0385	5 ✓	23	80	"
SANITARY PUMP	1	1	.0082	7	.0385	5 ✓	23	120	"
CABIN FANS "A" Dk.	1	1	.0082	7	.0385	5 ✓	23	130	"
CABIN FANS "A" Dk.	1	1	.0082	7	.0385	5 ✓	23	130	"
CABIN FANS "A" Dk.	1	1	.0082	7	.0385	5 ✓	23	130	"
CABIN FANS "B" Deck	1	1	.0130	7	.0485	8 ✓	31	80	"
AIR COMPRESSOR	1	1	.0130	7	.0485	8 ✓	31	80	"
Cabin Fans "B" Dk.	1	1	.0206	7	.0612	8 ✓	41	105	"
FRESH WATER PUMP	1	1	.0130	7	.0485	16 ✓	31	170	"
Cabin Fans "B" Dk.	1	1	.0130	7	.0485	8 ✓	31	70	"
ENGINE REVERSING GEAR	1	1	.0206	7	.0612	8 ✓	41	70	"
Cabin Fans "C" Dk. aft	1	1	.0082	7	.0385	5 ✓	23	80	"
ENGINE REVERSING GEAR	1	1	.0206	7	.0612	8 ✓	41	70	"
Cabin Fans "C" Dk. Midships	1	1	.0082	7	.0385	5 ✓	23	80	"
DOCKING OIL PUMPS	1	1	.0329	7	.0772	20 ✓	56	240	"
Galley Equip.	6	1	.0130	7	.0485	13 ✓	31	200	"
Oil Fuel Transfer Pump	3	1	.1659	19	.1055	160 ✓	209	270	"
1st Class Pantry Eq.	2	1	.0829	19	.0745	100 ✓	158	140	Var. Camb.
WINDLASS	1	1	.0829	19	.0745	100 ✓	158	140	Var. Camb.
Boat Winches	1	1	.0829	19	.0745	100 ✓	158	140	Var. Camb.
WINCHES, FORWARD	1	1	.0829	19	.0745	100 ✓	158	140	Var. Camb.
Bakery (Heating)	1	1	.0829	19	.0745	100 ✓	158	140	Var. Camb.
WINCHES, AFT	1	1	.0829	19	.0745	100 ✓	158	140	Var. Camb.
DeGaussing	1	1	.0829	19	.0745	100 ✓	158	140	Var. Camb.
STEERING GEAR	1	1	.0130	7	.0485	5 ✓	31	210	"
Cabin Fans "C" Dk. Fwd.	1	1	.0130	7	.0485	5 ✓	31	210	"
Cabin Fans "C" Dk. Fwd.	1	1	.0130	7	.0485	5 ✓	31	210	"
Cabin Fans "C" Dk. Fwd.	1	1	.0130	7	.0485	5 ✓	31	210	"
WORKSHOP MOTOR	1	1	.0206	7	.0612	30 ✓	41	100	"
VENTILATING FANS Aft	2	1	.0829	19	.0745	53 ✓	132	280	"
" " Fwd.	5	1	.0414	7	.0867	51 ✓	66	210	"
" " E.R.	3	1	.1659	19	.1055	128 ✓	251	110	Var. Camb.
" " E.R.	2	1	.1659	19	.1055	60 ✓	182	100	"
" " Fiddley	1	1	.0130	7	.0485	25 ✓	31.5	140	"
" " 1st Cl.	1	1	.0414	7	.0867	35 ✓	66	90	Rubber
Cabin Fans "D" Dk.	1	1	.0082	7	.0385	5 ✓	23	80	"



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.

Electrical Engineers.

Date

# COMPASSES.

Distance between electric generators or motors and standard compass

60'

Distance between electric generators or motors and steering compass

52'

The nearest cables to the compasses are as follows:—

A cable carrying .4 Amperes 4' feet from standard compass .67' feet from steering compass.

A cable carrying - Amperes - feet from standard compass - feet from steering compass.

A cable carrying - Amperes - 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.

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 Electrical Equipment of this vessel has

now been thoroughly and extensively reconditioned including dynamos, wiring conductors, and switchboards.

A reconditioned 50 K.W. turbine driven compound dynamo installed. The emergency generator replaced by a 35 K. W. Diesel engined dynamo. The System tested out under full working load, dynamos and all appliances

found satisfactory with the exception of the main dynamo circuit breakers, which will be adjusted at

New York to which port the vessel is proceeding. The electrical equipment is in my opinion eligible to be

classed and recorded.

Total Capacity of Generators 205 Kilowatts.

The amount of Fee See Report

When applied for,

When received.

Travelling Expenses (if any) £

Committee's Minute

NEW YORK OCT 20 1943

Assigned

Elec. light

Surveyor to Lloyd's Register of Shipping.



Engrs. Acc.	1	.0206	7	.0612	27	41	150	"	"	"
Fiddley Entrance	1	.0206	7	.0612	27	41	150	"	"	"
Officers Mess Rm.	1	.0051	7	.0305	14	16.5	120	"	"	"
WIRELESS								"	"	"
"C" Deck Acc. s.s.f.	1	.0414	7	.0867	17	66	120	"	"	"
SEARCHLIGHT								"	"	"
"C" Deck Acc. s.s.f.	1	.0130	7	.0486	18	31	120	"	"	"
MASTHEAD LIGHT								"	"	"

# GENERATOR, LIGHTING AND HEATING CONDUCTORS.

DESCRIPTION.	CONDUCTORS.		COMPOSITION OF STRAND.		TOTAL MAXIMUM CURRENT AMPERES.		Approximate Length. (Lead and Return.) Feet.	Insulated with	HOW PROTECTED.		
	No. per Pole.	Total Nominal Area per Pole Sq. Ins.	No.	Diameter.	Circuit.	Rule.					
F. Boiler Rm.	1	.0082	7	.0385	10	25.5	320	Var. Camb.	Lead Cover & Armour	"	"
MAIN GENERATOR	1	.0082	7	.0385	10	25.5	250	"	"	"	"
"A" Boiler Rm.	1	.0082	7	.0385	10	25.5	250	"	"	"	"
EQUALISER CONNECTIONS	1	.0206	7	.0612	35	46.5	80	"	"	"	"
Eng. Rm.	1	.0130	7	.0486	25	34.5	120	"	"	"	"
AUXILIARY GENERATOR	1	.0130	7	.0486	25	34.5	120	"	"	"	"
Eng. Rm.	1	.0130	7	.0486	25	34.5	120	"	"	"	"
EMERGENCY GENERATOR	1	.0032	7	.0242	6	11.5	180	Rubber	"	"	"
Refrig. MOTOR	1	.0032	7	.0242	6	11.5	180	Rubber	"	"	"
ROTARY TRANSFORMER											
GENERATOR											
EMERGENCY LIGHTING											
ENGINE ROOM											
Boiler Room Navigation	1	.0829	19	.0745	21	132	620	Rubber	Lead Cover & Armour	"	"
"A" Deck	1	.0032	7	.0242	5	11.5	600	"	"	"	"
AUXILIARY SWITCHBOARDS	1	.0130	7	.0486	7	31	580	"	"	"	"
"B" Deck	1	.0130	7	.0486	7	31	580	"	"	"	"
1st Class "C" Deck	1	.0082	7	.0385	5	23	560	"	"	"	"
"C" Deck Fwd.	1	.0414	7	.0867	28	66	600	"	"	"	"
Eng. Rm.	1	.0130	7	.0486	7	31	500	"	Lead Cover & Armour	"	"
ACCOMMODATION											
WIRELESS											
SEARCHLIGHT											
MASTHEAD LIGHT											
SIDE LIGHTS											
COMPASS LIGHTS											
POOP LIGHTS											
CARGO LIGHTS											
ARC LAMPS											
HEATERS											

VENTILATING FANS Aft	2	1	.0829	19	.0745	53	132	280	"	"	"
" " Fwd.	5	1	.0414	7	.0867	51	66	210	"	"	"
" " E.R.	3	1	.1659	19	.1055	128	251	110	Var. Camb.	"	"
" " E.R.	2	1	.1659	19	.1055	60	182	100	"	"	"
" " E.R.	2	1	.1659	19	.1055	60	182	100	"	"	"

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