

REPORT ON ELECTRIC FITTINGS.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

Received at London Office 6 AUG 1927

Date of writing Report 29/6/27 When handed in at ~~London~~ ~~Office~~ 1/7/27, 10 Port of GENOA.

No. in Survey held at SPEZIA, Date, First Survey 15-2-27, Last Survey 27-6-1927.
Reg. Book. SUPPLEMENT, (Number of Visits 18)

87980, on the STEEL TWIN SCREW MOTOR SHIP "ARDOR".

Built at MUGGIANO, SPEZIA. By whom built ANSALDO SAN GIORGIO Yard No. 206. When built 1927.

Owners LA COLUMBIA SOC. AN PER IL TRASPORTO Port belonging to GENOA.
DI PIERRO E DERIARTI.

Electric Light Installation fitted by VIVALDI & COMPAGNI, S.A. GENOA. Contract No. When fitted 1927.

System of Distribution TWO WIRE, SEPARATE, ✓

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. ✓

Position of Generators IN ENGINE ROOM, PORT SIDE, STARBOARD SIDE AND AFT YES. ✓

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 body-laths 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 OFF FORWARD BULKHEAD OF 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 -

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. ✓

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 effectually 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

DOUBLE POLE FUSES & SWITCHES. CIRCUIT BREAKERS WITH OVERLOAD AND REVERSED CURRENT TRIPS AND EQUALIZER SWITCHES INTERLOCKED TO RULE REQUIREMENTS.

Instruments on main switchboard 9. ammeters 6. 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

PUSHES AND LIGHTS ON MAIN BOARD. OHMMETER FOR TESTING POWER CIRCUITS.

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. ✓

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	240.	230	348 EACH	275.	DIESEL MOTOR.	FUEL OIL.	ABOVE 150° F.
AUXILIARY	1	16.	220	70.	450.	STEAM ENGINE.	-	-
EMERGENCY	2. BATTERIES.	-	12.	100. EACH	-	ACCUMULATORS.	-	-
ROTARY TRANSFORMER	2.	30.	220-110.	136. EACH	2,000.	ELECTRIC MOTOR.	-	-

LIGHTING AND HEATING CONDUCTORS.

Ref. No.	DESCRIPTION.	No. of Conductors.	Effective Area of each Conductor Sq. mm.	COMPOSITION OF STRAND.		Total Maximum Current in Amps.	Approximate Length (Lead and Return) Feet.	Insulated with	HOW PROTECTED.
				No.	Diameter.				
	MAIN GENERATOR...	6	116.	61.	1.56	348.	180	COPPER TINNED	FROM 172 To
	EQUALISER CONNECTIONS	3.	116.	61.	1.56	348.	90.	PURE RUBBER	60 mm ²
	AUXILIARY GENERATOR	2.	116.	61.	1.56	-	-	WHITE & BLACK RUBBER TAPE.	ABOVE THE LEAD
	EMERGENCY GENERATOR	-	-	-	-	ACCUMULATORS.	-	-	IMPREGNATED
	ROTARY TRANSFORMER...	4	116.	61.	1.56.	150.	20.	ALL LEAD COVERED	PAPER, JUTE, DOUBLE METAL RIBBON AND IMPREGNATED JUTE
	AUXILIARY SWITCHBOARDS	2.	4.59.	7.	0.95.	12.	50	-	-
	ENGINE ROOM	2	7.25.	7.	1.16.	25.	100.	(FOR ALL CONDUCTORS)	-
	BOILER ROOMS	2.	7.25.	7.	1.16.	25.	100.	-	-
	ACCOMMODATION SHELTER DECK AFT.	2.	7.25.	7.	1.16.	25.	250.	-	-
	UPPER "	2.	12.00.	19.	0.9.	32.	200.	-	-
	AMIDSHIPS & FORWARD GROUPS OF 10 LAMPS.	4	12.00.	19.	0.9.	32.	800.	-	FROM 1 To 40% ABOVE LEAD.
	" " 1 "	2.	2.14.	1.	1.6.	5.	50.	-	IMPREGNATED JUTE STEEL SHEET COVERED WITH PROTECTIVE VARNISH.
	" " 1 "	2.	1.13.	1.	1.2.	0.5.	30.	-	-
	MAINS TO CARGO LIGHTS	2	12.00.	19.	0.9.	12.	600.	-	-
	" " NAVIGATION	2	7.25.	7.	1.16.	6.	500.	-	-
	WIRELESS	-	12.00.	19.	0.9.	20.	500.	-	-
	SEARCHLIGHT	-	-	-	-	-	-	-	-
	MASTHEAD LIGHT...	2.	1.13.	1.	1.2.	1.	550.	-	-
	SIDE LIGHTS	2.	1.13.	1.	1.2.	1.	450.	-	-
	COMPASS LIGHTS	2.	1.13.	1.	1.2.	1.	450.	-	-
	POOP LIGHTS	7.	1.13.	1.	1.2.	3.	500.	-	-
	CARGO LIGHTS	7.	2.14.	1.	1.6.	4.	300.	-	-
	ARC LAMPS	-	-	-	-	-	-	-	-
	HEATERS	-	-	-	-	-	-	-	-

MOTOR CONDUCTORS.

Ref. No.	DESCRIPTION.	No. of Motors.	Effective Area of each Conductor Sq. mm.	COMPOSITION OF STRAND.		Total Maximum Current in Amps.	Approximate Length (Lead and Return) Feet.	Insulated with	HOW PROTECTED.
				No.	Diameter.				
	BALLAST PUMP	1	40.	37.	1.17.	76.	50.	-	-
	MAIN BILGE LINE PUMPS	1.	12.	19.	0.9.	32.	50.	-	-
	GENERAL SERVICE PUMP	-	-	-	-	-	-	-	-
	EMERGENCY BILGE PUMP	-	-	-	-	-	-	-	-
	SANITARY PUMP	1.	4.59.	7.	0.95.	12.	80.	As ABOVE.	As ABOVE.
	CIRC. SEA WATER PUMPS	-	-	-	-	-	-	-	-
	CIRC. FRESH WATER PUMPS	-	-	-	-	-	-	-	-
	AIR COMPRESSOR	1.	12.	19.	0.9.	40.	120.	-	-
	FRESH WATER PUMP	1.	2.	1.	1.6.	7.	100.	-	-
	ENGINE TURNING GEAR	2.	7.25.	7.	1.16.	25.	150.	-	-
	ENGINE REVERSING GEAR	-	-	-	AIR	-	-	-	-
	LUBRICATING OIL PUMPS	1.	12.	19.	0.9.	32.	50.	-	-
	OIL FUEL TRANSFER PUMP	1.	12.	19.	0.9.	32.	150.	-	-
	WINDLASS	1.	172.	61.	1.9.	300.	850.	-	-
	WINCHES, FORWARD	2.	65.	37.	1.5.	140.	600.	-	-
	WINCHES, AFT	1.	65.	37.	1.5.	140.	300.	-	-
	STEERING GEAR-	-	-	-	-	-	-	-	-
	(a) MOTOR GENERATOR	2.	116.	61.	1.56.	160.	200.	-	-
	(b) MAIN MOTOR	2.	116.	61.	1.56.	160.	150.	-	-
	WORKSHOP MOTOR	4.	7.25.	7.	1.16.	30.	200.	-	-
	VENTILATING FANS	2.	4.59.	7.	0.95.	12.	200.	-	-
	"	4.	12.00.	19.	0.9.	40.	50.	-	-
	REFRIGERATOR	6	35.	37.	1.1.	70.	200.	-	-
	OIL SEPARATOR	3.	4.59.	7.	0.95.	12.	150.	-	-
	CAPTAN.	2.	65.	37.	1.5.	140.	300.	-	-
	SERVICE OIL PUMP.	2.	4.59.	7.	0.95.	12.	50.	-	-
	SERVICE OIL PUMP.	2.	2.14.	1.	1.6.	7.	150.	-	-

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 LIGHTING, 10 VOLTS POWER.

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 NO PAPER INSULATED CABLES USED.

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 GALVANISED IRON CLIPS, MAIN LINES RUN IN LIGHT SHEET METAL TRAYS. STEEL BRAIDED CABLES IN MACH. SPACE & ALONG DECKS

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 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 LOOPING SYSTEM.

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 armoured 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 IMPORTANT PARTS EARTHED BY DIRECT METALLIC CONTACT (SWITCHBOARD & DYNAMO FRAMES). CONNECTIONS AT SWITCHBOARD FOR INDICATING EARTHS ARE SMALL (1 mm²). 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 EMERGENCY CIRCUIT IS FROM ACCUMULATORS AT 12 VOLTS. PLACED IN STORE ROOM IN ENGINE ROOM, ON STARBOARD SIDE AFT. (FOR MACHINERY SPACE ONLY).

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 where or exposed to drip or condensed moisture, watertight YES, are any fittings placed in spaces in which goods are liable to be stored in close proximity to them; if so, how are they protected NONE.

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 ONLY IN PUMPROOMS. GAS-TIGHT AND STRONG GLASS GLOBES. how are the cables led LEAD-COVERED CABLES IN IRON PIPING, WITHOUT JOINTS.

where are the controlling switches situated OUTSIDE, ON SIDE OF HOUSE, IN WEATHER-TIGHT BOXES.

Searchlight Lamps, No. of NONE, whether fixed or portable - , are their fittings as per Rule - .

Arc Lamps, other than searchlight lamps, No. of NIL, 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 bushes, 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 - , if not of this type, state distance of the combustible material horizontally or vertically above the motors - and - .

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 STEEL MASTS.

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.

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.

Dwight & Company
St. Paul

Electrical Engineers.

Date 30 JUNE 1927.

COMPASSES.

Distance between electric generators or motors and standard compass

225' - 0"

Distance between electric generators or motors and steering compass

220' - 0"

The nearest cables to the compasses are as follows:—

A cable carrying 3 Amperes 10 feet from standard compass 7 feet from steering compass.

A cable carrying 8 Amperes 10 feet from standard compass 7 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 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 Nil degrees on — course in the case of the standard compass, and Nil degrees on — course in the case of the steering compass.

ANSALDO SAN GIORGIO
 CANTIERE NAVALE
 IN DIREZIONE

E. Paolo Lardera

Builder's Signature.

Date 30-VI-1927

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 installation has been built under Special Survey of tested materials and in accordance with the Secretary's letters, approved plans and rule requirements.

The Materials and workmanship are good and the installation when tried under full working conditions at sea was found satisfactory.

In my opinion the vessel is eligible for the notation "ELECTRIC LIGHT".

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

W.D.
 10/8/27
J.L.

Total Capacity of Generators 256. Kilowatts.

The amount of Fee ... £ 3,800.00

When applied for, 19...

Travelling Expenses (if any) £ 500.00

When received, 28.11.27

J.W. Leicester
 Alex. Lawrence
 Surveyor to Lloyd's Register of Shipping.

Committee's Minute TUES. 23 AUG 1927

FRI. 30 SEP 1927
 TUES. 8 NOV 1927

Assigned

Elec. light

Im. 126.—Transfer.
 (The Surveyors are requested not to write on or below the space for Committee's Minute.)



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