

Rpt. 13.

No. 2178

REPORT ON ELECTRIC FITTINGS.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

28A. 7K 1926

Received at London Office

Date of writing Report 15th April 1926. When handed in at Local Office 19 Port of Barrow-in-Furness.

No. in Survey held at Barrow. Date, First Survey 26th June/25 Last Survey 21 December 1925
Reg. Book. on the Twin screw steamer "Otranto" (Number of Visits.....)

Built at Barrow. By whom built Bickers Ltd. Yard No. 619 When built 1925-12
Tons { Gross 20000
Net 12031

Owners Orient Steam Navigation Co. Ltd. Port belonging to Barrow

Electric Light Installation fitted by Bickers Ltd. Contract No. 619 When fitted 1925

System of Distribution Two Wire System ✓

Pressure of supply for Lighting 220 ✓ 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 ✓

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 overload Yes ✓, are they compound wound Yes ✓

are they over compounded 5 per cent. No, 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 and clearly marked Yes, are they so spaced or shielded that they cannot be accidentally earthed, or short circuited Yes

Position of Generators In Dynamo room situated on "G" Deck forward of Engine room Hatchway. Are the lubricating arrangements of the generators as per Rule 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 axis 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 Dynamo room. 3 sections Port Starboard and Centre.

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, incombustible non-absorbent materials Framelled Slate, is all insulation of high dielectric strength and of permanently high insulation resistance Yes

insulated from the slab with mica or micanite and the slab similarly insulated from its framework Yes, and is the frame effectively earthed Yes

Are the following fittings as per Rule, viz.:— 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 To each Generator:— Triple Pole circuit breaker with DP of 2 DP release. (1 pole Electrically operated) Equaliser switch has no automatic features. Branch Circuits to Auxiliary switchboards. DP tandem circuit breakers with time lag and DP releases. To Motors etc. Single Pole knife switch & DP fuses.

Instruments on main switchboard Three ammeters Six 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

One 220 watt lamp with fuse and switch between each pole and earth.

Switches, Circuit Breakers and Fusible Cut-outs, do these comply with the requirements of the Rules Yes

Section and Distribution Boards, is the construction, protection, insulation, material, and position of these as per rule Yes

Insulation of Cables, state type of cables, single or twin *Yes* are the cables insulated and protected as per Tables III or IV of the Rules *Yes*

Fall of Pressure, state maximum between bus bars and any point of the installation under maximum load *lighting 6 volts. Power 8 volts*

Cable Sockets and other connections, are the ends of all cables having a sectional area of 0.007 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.*

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*

Special heat resisting lead covered cable is used over tops of boilers for lighting circuits etc.

Support and Protection of Cables, state how the cables are supported and protected *Supported in wood casings, or by brass or galvanised iron clips. Protected by wood casing or lead sheathing or lead sheathing and galvanised steel wire armour.*

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 VI *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 Positions, 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 *Fibre*

Earthing Connections, state what earthing connections are fitted and their respective sectional areas

Two conductor insulated system

are their connections made as per Rule

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 *Allen Semi-diesel 2 Cylinder engine in Emergency Dynamo room. A deck with a distribution switchboard for Emergency Circuit and a main Emergency change over switch.*

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*, are separate screens provided for the use of oil and electric side lights *Yes*

are separate oil lanterns provided for the mast head lights and side lights *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*

lighting fittings in these rooms are of Cast-iron. Lamps are removed when not required

are any fittings placed in spaces where inflammable or explosive dust or gases are liable to be present, if so, how are they protected *none fitted*

how are the cables led

where are the controlling switches situated *✓*

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

Arc 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 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 axis of rotation fore and aft *no*

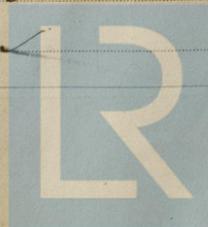
if situated near unprotected woodwork or other combustible material, are the motors of the totally enclosed, pipe ventilated, forced draught, drip or flame proof type *totally enclosed*, if not of this type, state distance of the combustible material horizontally or vertically above the motors *18" Horizontal* and *✓*

Control Gear and Resistances, are the generator field and motor speed regulators, starters and controllers constructed as per Rule *Yes*

Lightning Conductors, where lightning conductors are required, are these fitted as per Rule *none required (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 *✓*

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



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Lloyd's Register Foundation

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	400 each.	220.	1818.	500.	Lead Steam Turbine		
AUXILIARY ...								
EMERGENCY ...	1	36.	220.	163.	325.	Semi-diesel Engine	Crude Oil Above 150°F	
ROTARY TRANSFORMER								

LIGHTING AND HEATING CONDUCTORS.

Ref. No.	DESCRIPTION.	No. of Conductors.	Effective Area of each Conductor. Sq. Ins.	COMPOSITION OF STRAND.		Total Maximum Current. Ampères.	Approximate Length. (Lead and Return.) Feet.	Insulated with	HOW PROTECTED.
				No.	Diameter.				
	MAIN GENERATORS ^{2 Poles} _{1 Equalizer}	5	1.125	Buss Bars	4 1/2" x 1/4"	909 each.		Porcelain Insulators	Sheet Iron
	AUXILIARY GENERATOR	✓	✓	✓	✓	✓	✓	✓	✓
	EMERGENCY GENERATOR	1 Pole	.2	37	.083	164	30	t. I. R.	Braided & Armoured.
	ROTARY TRANSFORMER	✓	✓	✓	✓	✓	✓	✓	✓
	ENGINE ROOM #1	2 Poles	.3	37	.103	350	56	t. I. R.	Lead Covered.
	ENGINE ROOM #2	"	.3	37	.103	420	46	"	"
	ENGINE ROOM #3	"	.25	37	.093	340	284	"	"
"A"	Auxiliary Switch Board	"	.3	37	.103	590	500 (Std) 600 (Starboard)	"	Braided & Armoured.
"B"	" " " Post	"	.3	37	.103	310	336	"	" "
"B"	" " " Std	"	.3	37	.103	310	416	"	" "
"C"	" " " Post	"	.3	37	.103	350	152	"	" "
"C"	" " " Std	"	.3	37	.103	350	272	"	" "
"D"	" " " "	"	.25	37	.093	590	324 (Std) 424 (Starboard)	"	" "
"X1"	Van Switchboard	"	.2	37	.083	270	184	"	" "
"X2"	" " " "	"	.2	37	.083	270	144	"	" "
"G"	Galley Switchboard	1 Pole	.4	61	.093	435	120 (Std) 200 (Starboard) 400 (Std)	"	" "
"R"	Refrigerating Switchboard	2 Poles	.6	91	.093	940	360 (Std) 163	"	" "
"E"	Emergency Switchboard	1 " "	.25	37	.093	163	292 (Std) 390 (Starboard)	"	" "
	WIRELESS	1 Pole	.07	4	.052	4	328	"	Lead Covered.
	SEARCHLIGHT	1 " "	.06	19	.064	60	352	"	Hemp Braided
	MASTHEAD LIGHT	1 " "	.009	3	.024	45	450	"	Hemp Braided Conduit
	SIDE LIGHTS	1 Pole	.072	3	.039	45	132 (Std) 92	"	Lead Covered.
	COMPASS LIGHTS	1 " "	.072	3	.039	15	20	"	" "
	POOP LIGHTS								
	CARGO LIGHTS								
	ARC LAMPS								
	HEATERS								

MOTOR CONDUCTORS.

Ref. No.	DESCRIPTION.	No. of Motors.	Effective Area of each Conductor. Sq. Ins.	COMPOSITION OF STRAND.		Total Maximum Current. Ampères.	Approximate Length. (Lead and Return.) Feet.	Insulated with	HOW PROTECTED.
				No.	Diameter.				
	Aux Air BALLAST PUMP	1	.06	19	.064	60	120	t. I. R.	Lead Covered.
	MAIN BILGE LINE PUMPS	2	.03	19	.044	41	90	t. I. R.	Lead Covered.
	GENERAL SERVICE PUMPS	2	.2	37	.083	132	120	"	" "
	EMERGENCY BILGE PUMP	1	.15	37	.072	88	840	"	Armoured & Braided
	SANITARY PUMPS	2	.15	37	.072	138	120	"	Lead Covered.
	CIRC. SEA WATER PUMPS	1	.045	19	.072	84	90	"	Lead Covered.
	GREEN PUMP WATER PUMPS	1	.04	19	.052	48	120	"	" "
	AIR COMPRESSOR	2	.15	37	.072	132	90	"	Lead Covered.
	Hotwell PUMPS	2	.045	19	.072	84	150	"	" "
	ENGINE TURNING GEAR	2	.075	19	.072	96	150	"	" "
	ENGINE REVERSING GEAR	6	.045	19	.072	89	120	"	Armoured & Braided
	LUBRICATING OIL PUMPS	4	.045	4	.052	20	300	"	Lead Covered.
	OIL FUEL TRANSFER PUMPS	2	.03	19	.044	32	300	"	Armoured & Braided.
	WINDLASS	2	.3	37	.103	400	360	"	" " & Conduits
	WINCHES, FORWARD	6	.045	19	.072	84	180	"	Lead Covered.
	WINCHES, AFT	10	.1	19	.083	100	180	"	Cotton Braided & Conduits
	STEERING GEAR	2	.3	37	.103	200	540	"	Armoured & Braided
	WORKSHOP MOTOR	5	.045	4	.052	20	60	"	Lead Covered.
	VENTILATING FANS (Refug.)	2	.04	19	.052	48	150	"	Cotton Braided
	Boat Hoists	6	.04	19	.052	50	120	"	Lead Covered.
	" " "	1	.07	4	.044	24	120	"	" "
	Capstans (aft)	2	.4	61	.093	240	330	"	" "
	Passenger Lift	1	.004	4	.036	16	60	"	" "
	Stores	2	.03	19	.044	32	180	"	Cotton Braided
	Refrigerating Machinery	3	.6	91	.093	368	210	"	Lead Covered.
	Brine Pumps	4	.0225	4	.064	32	120	"	" "
	Water Circulating Pumps	2	.0225	4	.064	32	120	"	" "
	Bilge Pump (ref room)	1	.045	4	.039	8	60	"	" "
	Van in Refrigerating Room	1	.045	4	.039	6	210	"	" "

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.

For VICKERS LIMITED.

J. Seymour Electrical Engineer.

Date 22nd April, 1926.

COMPASSES.

Distance between ^{6 HP Boat Hoist} electric generators or motors and standard compass 50 ft
Distance between ^{6 HP Boat Hoist} electric generators or motors and steering compass 46 ft

The nearest cables to the compasses are as follows:—

A cable carrying 6 Ampères 13 feet from standard compass 10 feet from steering compass.

A cable carrying 24 Ampères 25 feet from standard compass 20 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 *nil* degrees on *all* course in the case of the standard compass, and *nil* degrees on *all* course in the case of the steering compass.

For VICKERS LIMITED.

S. W. Jan.
DIRECTOR.

Builder's Signature.

Date 22/4/26.

Is this installation a duplicate of a previous case *Yes* If so, state name of vessel *V.L.S. "Orama"*

General Remarks (State quality of workmanship, opinions as to class, &c. *This Electric light and Power installation has been efficiently fitted on board and proved satisfactory under working conditions. In my opinion the vessel is eligible to have the notation of Electric light made in the Register Book.*

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

C. W. D.
29/4/26

Total Capacity of Generators _____ Kilowatts

The amount of Fee ... £ 62 : 8 :
Travelling Expenses (if any) £ : :
When applied for, Dec 23 1925.
When received, Jan 14 1926.

Wm Cowie
Surveyor to Lloyd's Register of Shipping.

Committee's Minute

Assigned

Im. 9.24.—Transfer.
(The Surveyors are requested not to write on or below the space for Committee's Minute.)

		Motor Conductors				U.S.S. "Otranto"		
Description	No. of Motors	Effective Area of each Conductor sq. inches	Composition of Strands		Total maximum Current Amps.	Approx. length lead return Feet.	Insulated with	How Protected
			No.	Diameter				
Printing Machine	1	.003	3	.036	4	120	U.S.R.	Cotton Braided
Hydro Extractor	2	.003	3	.036	8	120	"	Lead Covered
Washer	1	.0045	4	.029	12	180	"	" "
Dry Room Lumber Fan	1	.003	3	.036	8	90	"	" "
Bilge Pump (Steering Compst.)	1	.003	3	.036	3	180	"	" "
Callender	1	.003	3	.036	8	180	"	" "
Cuff & Collar Machine	1	.003	3	.036	8	180	"	" "
Boat Winches	2	.003	19	.044	30	90	"	" "
Engineer's Hoist	1	.004	4	.036	12	120	"	" "
Supply Pump	1	.003	3	.036	2	90	"	" "
Oil Separator	1	.003	3	.036	6	120	"	" "
Drain Tank Pump	1	.0045	4	.029	3	180	"	" "
Eng. Room Fans	2	.06	19	.064	54	300	"	" "
Galley Blowers	2	.0045	4	.029	9	150	"	" "
Dishwashers	2	.0045	4	.029	8	150	"	" "
Ice Cream Mgrs.	1	.004	4	.036	12	180	"	" "
Milk Emulsifier	1	.003	3	.036	4	180	"	" "
Potato Peeler	1	.002	3	.029	2	120	"	" "
Dough Mixer	1	.004	4	.036	16	60	"	" "
Mincing Machine	1	.0045	4	.029	8	150	"	" "
Whisking Machine	1	.002	3	.029	4	90	"	" "
Roll Chaffer	1	.003	3	.036	6	90	"	" "
Burnisher	1	.003	3	.036	2	180	"	" "
Radiator Fan	1	.004	4	.036	16	18	"	" "
vent. Fans	22	.003	3	.036	1	180	"	Cotton Braided
" "	15	.003	3	.036	2	150	"	" "
" "	4	.003	3	.036	3	180	"	" "
" "	3	.0045	4	.029	5	150	"	" "
" "	1	.003	3	.036	6	30	"	Lead Covered
" "	1	.0045	4	.029	4	60	"	" "
" "	21	.004	4	.036	8	150	"	Cotton Braided
" "	1	.004	4	.036	10	42	"	" "
" "	18	.01	4	.044	14	150	"	" "
" "	3	.01	4	.044	18	150	"	Lead Covered
" "	4	.01	4	.044	22	90	"	" "
Hot Water Boilers	4	.014	4	.036	16	120 Each	"	" "
Radiators	144	.003	3	.036	2, 3, 4 & 1 KW	60, 60 & 120	"	Cotton Braided
Roasting Ovens	2	.03	19	.044	15 KW	60	"	Lead Covered
Grill	2	.0225	4	.064	11 KW	60	"	" "
Bakers Oven	2	.06	19	.064	16 KW	240	"	" "
Toaster	1	.06	19	.064	11 KW	180	"	" "
Electric Irons	10	.002	3	.029	2, 1.75 & 1	60 Each	"	" "
Hot Plates	10	.003	3	.036	9	180	"	Cotton Braided

Heater Conductors

