Rpt. 13.

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REPORT ON ELECTRIC LIGHTING INSTALLATION. No. 1296

Port of NAGASAKI. Date of First Survey 24th Mar Date of Last Survey 23rd June 1920 No. of Visits 6

No. in Reg. Book on the ~~Iron or~~ Steel twin s. s. "Arizona Maru" Port belonging to Osaka

Built at Nagasaki By whom Mitsubishi Zosen Kaisha When built 1920.

Owners Osaka Shosen Kaisha Owners' Address Osaka

Yard No. 280 Electric Light Installation fitted by Mitsubishi Zosen Kaisha When fitted 1920

DESCRIPTION OF DYNAMO, ENGINE, ETC.

Two sets of a compound wound continuous current dynamo, on the same bed plate with a vertical engine.

Capacity of Dynamo 150 Amperes at 100 Volts, whether continuous or alternating current Continuous

Where is Dynamo fixed In thrust recess in Engine room.

Position of Main Switch Board On bulkhead aft of dynamo having switches to groups 5 to 159 of lights, &c., as below

Positions of auxiliary switch boards and numbers of switches on each Two in fore part on shelter deck; eight in middle part on shelter deck; three in middle part on upper deck; three in aft part on shelter deck; five in engine room.

If cut outs are fitted on main switch board to the cables of main circuit Yes. and on each auxiliary switch board to the cables of auxiliary circuits Yes. and at each position where a cable is branched or reduced in size Yes. and to each lamp circuit No.

If vessel is wired on the double wire system are cut outs fitted to both flow and return wires or cables of all circuits including lamp circuits Yes.

Are the cut outs of non-oxidizable metal Yes. and constructed to fuse at an excess of 50 per cent over the normal current

Are all cut outs fitted in easily accessible positions Yes. Are the fuses of standard dimensions Yes. If wire fuses are used are permanent instructions fitted on or near each switch board giving particulars of proper size of fuse for each circuit Yes.

Are all switches and cut-outs constructed of incombustible materials and fitted on incombustible bases Yes.

Total number of lights provided for 6 Circuits arranged in the following groups :—

		5 c.p.	10 c.p.	16 c.p.	25 c.p.	32 c.p.	50 c.p.	200 W			
A	Shelter deck	7	26	106	12	2	6	—	candle power requiring a total current of	34.74	Amperes
B	Upper deck	2	–	125	–	–	2	—	candle power requiring a total current of	27.68	Amperes
C	Engine room	–	–	157	–	–	–	—	candle power requiring a total current of	31.71	Amperes
D	Fore cargo	–	–	–	–	–	24	2	candle power requiring a total current of	19.6	Amperes
E	aft cargo	–	–	–	–	–	24	2	candle power requiring a total current of	19.6	Amperes
F	Navigation	"	–	–	–	–	5	–	" " " " " "	5.6	"
	Two Mast head light with one double filament lamps each of						32		candle power requiring a total current of	1.12	Amperes
	Two Side light with ds. lamps each of						32		candle power requiring a total current of	1.12	Amperes
	One Stern " " " " "						16		" " " " " " "	1.12	"
	One Morse Code Signal " " 3 " " "								" " " " " " "	0.63	"
	12 Cargo lights of 50 c.p. x 4						(200)		candle power, whether incandescent or arc lights		Incandescent.
	4 " " " 200 watts						(400)		" " " " " " "		Incandescent.

If arc lights, what protection is provided against fire, sparks, &c. ✓

Where are the switches controlling the masthead and side lights placed In wheel house on flying bridge.

DESCRIPTION OF CABLES.

Main cable carrying 150 Amperes, comprised of 37 wires, each 15 L.S.G. diameter, 0.15444 square inches total sectional area

Branch cables carrying 34.74 Amperes, comprised of 19 wires, each 18 L.S.G. diameter, 0.0350 square inches total sectional area

Branch cables carrying 5.6 Amperes, comprised of 7 wires, each 20 L.S.G. diameter, 0.0070 square inches total sectional area

Leads to lamps carrying 0.21 Amperes, comprised of 1 wires, each 18 L.S.G. diameter, 0.0018 square inches total sectional area

Cargo light cables carrying 2.6 Amperes, comprised of 168 wires, each 38 L.S.G. diameter, 0.0050 square inches total sectional area

DESCRIPTION OF INSULATION, PROTECTION, ETC.

Wires and cables are composed of tinned copper insulated with pure india rubber, vulcanizing india rubber coated tape, and the whole vulcanized together, then lead covered, or lead covered and armoured with galvanized iron wires.

Joints in cables, how made, insulated, and protected Made in brass pieces fitted on porcelain bases in submain boards and distributing boards in teak cases, or extension box of porcelain base, and some joints in cast iron box are soldered and insulated with pure india rubber or rubber coated tape.

Are all the joints of cables thoroughly soldered, resin only having been used as a flux Yes. Are all joints in accessible positions, none being made in bunkers, cargo spaces, or spaces which may at any time be used for carrying cargo, stores, or baggage Yes, except in extension box with cast iron cover in cargo space.

Are there any joints in or branches from the cable leading from dynamo to main switch board No.

How are the cables led through the ship, and how protected On the double wire distribution system, and cables are protected by lead covers, or galvanized wires, or galvanized iron pipes.

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DESCRIPTION OF INSULATION, PROTECTION, ETC.—continued.

Are they in places always accessible Yes.

What special protection has been provided for the cables in open alleyways or where exposed to weather or moisture Protected by galvanized iron pipes, or galvanized iron wire armouring.

What special protection has been provided for the cables near galleys or oil lamps or other sources of heat Galvanized iron wire armouring.

What special protection has been provided for the cables near boiler casings Galvanized iron wire armouring.

What special protection has been provided for the cables in engine room Galvanized iron wire armouring, or galvanized iron pipes

How are cables carried through beams Lead bushes. *through bulkheads, &c.* Water tight packing glands.

How are cables carried through decks Galvanized iron deck tubes.

Are any cables run through coal bunkers Yes. *or cargo spaces* Yes. *or spaces which may be used for carrying cargo, stores, or baggage* Yes.

If so, how are they protected Galvanized iron wire armouring, or galvanized iron pipes.

Are any lamps fitted in coal bunkers or spaces which may at times be used for cargo, coals, or baggage Yes.

If so, how are the lamp fittings and cable terminals specially protected Lamps by strong cast iron cover, and terminals are in cast iron extension box.

Where are the main switches and cut outs for these lights fitted On shelter deck passage.

If in the spaces, how are they specially protected ✓

Are any switches or cut outs fitted in bunkers No.

Cargo light cables, whether portable or permanently fixed Portable *How fixed* with fibre fork connector.

In vessels fitted on the single wire system, how is the dynamo terminal fixed to the hull of vessel ✓

How are the returns from the lamps connected to the hull ✓

Are all the joints with the hull in accessible positions ✓

VESSELS BUILT FOR CARRYING PETROLEUM.

In vessels built for carrying petroleum, are all switches and cut-outs fitted in positions not liable to the accumulation of petroleum vapour or gas ✓

Are any switches, cut outs, or joints of cables fitted in the pump room or companion ✓

How are the lamps specially protected in places liable to the accumulation of vapour or gas ✓

The installation is ——— *supplied with a voltmeter and* two ~~an~~ *amperemeters fixed* on Switchboard

The copper used is guaranteed to have a conductivity of 99·6 *per cent. that of pure copper.*

Insulation of cables is guaranteed to have a resistance of not less than 600 *megohms per statute mile after 24 hours' immersion in seawater.*

The foregoing statements are a correct description of the Electric Light installation fitted by us on this vessel and we declare that it is at this date in good order and safe working condition.

NAGASAKI WORKS, MITSUBISHI ZOSEN KAISHA, LTD.

GENERAL MANAGER. *Electrical Engineers* *Date* 13th July 1920

COMPASSES.

Distance between dynamo or electric motors and standard compass 124 ft. from dynamo, and 66 ft. from motor generator

Distance between dynamo or electric motors and steering compass 120 ft. " " " 64 ft. " " "

The nearest cables to the compasses are as follows:—

A cable carrying	5·6	*Amperes*	9	*feet from standard compass*	7	*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 Yes.

The maximum deviation due to electric currents, etc., was found to be nil *degrees on* any *course in the case of the standard compass and* nil *degrees on* any. *course in the case of the steering compass.*

Builder's Signature. *Date*

GENERAL REMARKS. Wireless fitted.

This Electric light Installation has been fitted in accordance with the Rules, tested, and found satisfactory.

A. S. Williamson

Surveyor to Lloyd's Register of British and Foreign Shipping.

Elec Lt. Rell 20/8/20

Committee's Minute FRI. AUG. 27 1920

THE SURVEYORS ARE REQUESTED NOT TO WRITE ACROSS THIS MARGIN.

REPORT FORM No. 13.

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