

REPORT ON ELECTRIC LIGHTING INSTALLATION. No. 1324

Port of NAGASAKI. Date of First Survey 23rd March Date of Last Survey 3rd May '21 No. of Visits 12
No. in on the ~~XXXX~~ Steel Twin G. Turbine s/s Rakuyo Maru Port belonging to Yokohama, Japan.
Reg. Book Built at Nagasaki. By whom Mitsubishi Zosen Kaisha, Ltd. When built 1921.
Owners Toyo Kisen Kabushiki Kaisha., Owners' Address Tokio, Japan.
Yard No. 3 4 2. Electric Light Installation fitted by Mitsubishi Zosen Kaisha, Ltd., When fitted 1921.

DESCRIPTION OF DYNAMO, ENGINE, ETC.

Two sets of a Compound Continuous Current dynamo on the same bed plate with a vertical engine each 35 K.W.

Capacity of Dynamo 350 Amperes at 100 Volts, whether continuous or alternating current Continuous

Where is Dynamo fixed in dynamo room on Second deck Whether single or double wire system is used double

Position of Main Switch Board on Stard. Bhd. in dynamo room switches to groups 5 to 212 of lights, &c., as below

Positions of auxiliary switch boards and numbers of switches on each One on Navigation bridge, One on bridge deck, twelve in middle part of shelter deck, three on fore part of shelter deck, two on after part of shelter deck, twelve on upper deck and four in machinery space.

If fuses 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 yes

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

Are the fuses of non-oxidizable metal yes and constructed to fuse at an excess of 50 per cent over the normal current

Are all fuses 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 fuses constructed of incombustible materials and fitted on incombustible bases yes

Total number of lights provided for 8 circuits arranged in the following groups:—

circuit		Watts											
		5	16	25	32	50	40	100	200				
A	1st 2nd passenger lights each of	82	51										
B	Middle & fore crews " "	61	92	14									
C	Fore steerage " "	75											
D	Aft steerage " "	21	13	4									
E	Machinery " "	13	4										
F	Fore cargo " "				24			2					
G	Aft cargo " "				16			2					
H	Navigation " "					5							
I	1 Morse signal 3 lights each of	16											
J	1 Stern one double filament				32								
K	2 Mast head light with " lamps each of				32								
L	one double filament												
M	2 Side light with " lamps each of				32								
N	10 Cargo lights of 50cp x 4 (200cp)												
O	4 " " " 200 watts												

If arc lights, what protection is provided against fire, sparks, &c. none.

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

DESCRIPTION OF CABLES.

Main cable carrying 350 Amperes, comprised of 350 wires, each 20 S.W.G. diameter, 0.3563 square inches total sectional area
Branch cables carrying 38.195 Amperes, comprised of 19 wires, each 16 S.W.G. diameter, 0.0624 square inches total sectional area
Branch cables carrying 5.6 Amperes, comprised of 7 wires, each 20 S.W.G. diameter, 0.0072 square inches total sectional area
Leads to lamps carrying 2.1 Amperes, comprised of 1 wires, each 18 S.W.G. diameter, 0.0018 square inches total sectional area
Cargo light cables carrying 2.6 Amperes, comprised of 168 wires, each 38 S.W.G. diameter, 0.005 square inches total sectional area

DESCRIPTION OF INSULATION, PROTECTION, ETC.

Wires & cables used in the installation of the ship are composed of tinned copper insulated with ^{india} pure rubber, vulcanized india rubber coated tape & the whole vulcanized together then lead covered or lead covered and armoured with galvanized iron wire.

Joints in cables, how made, insulated, and protected Joints in cable are made in brass pieces fitted on porcelain bases, in submain board & distributing board in teak case or extension box of porcelain base & some joints in cast iron boxes and insulated with pure rubber or rubber coated tape.

Are all the joints of cables thoroughly soldered, and the flux used not containing acids or other corrosive substances 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

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 with the double wire distribution system and cables are protected by lead cover or galvanized iron wire armouing or galvanized iron pipes.

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 protected by galvanized iron wire armouring.

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

What special protection has been provided for the cables in engine room protected by galvanized iron wire armouring or galvanized iron pipes.

How are cables carried through beams through lead bushes through bulkheads, &c. through water-tight packing glands.

How are cables carried through decks through 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

If so, how are they protected by 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 are protected by strong cast iron cover & cable terminals are in cast iron extension box.

Where are the main switches and fuses for these lights fitted in the starboard side on the shelter deck.

If in the spaces, how are they specially protected no

Are any switches or fuses fitted in bunkers no

Cargo light cables, whether portable or permanently fixed portable How fixed by fibre & connector or W.T. combined socket and switch.

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

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

Are all the joints with the hull in accessible positions if

Is the installation supplied with a voltmeter yes, and with an amperemeter yes (2), fixed on main switch board.

VESSELS BUILT FOR CARRYING PETROLEUM.

In vessels built for carrying petroleum, are all switches and fuses fitted in positions not liable to the accumulation of petroleum vapour or gas /

Are any switches, fuses, 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 copper used is guaranteed to have a conductivity of not less than that of the Engineering Standards Committee's standard, and the wires are protected by tinning from the sulphur compounds present in the insulating material.

Insulation of cables is guaranteed to have a resistance of not less than 600 megohms per statute mile at 60° Fahrenheit after 24 hours' immersion in water, the test being made after one minute's electrification at not less than 500 volts and while the cable is still immersed.

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 ZOSSEN KAISHA, LTD.

COMPASSES.

Distance between dynamo or electric motors and standard compass 110 ft from dynamo & 64 ft from motor generator.

Distance between dynamo or electric motors and steering compass 112 ft from dynamo & 67 ft from motor generator.

The nearest cables to the compasses are as follows:—

A cable carrying	<u>5.6</u>	Amperes	<u>6</u>	feet from standard compass	<u>7</u>	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.

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GENERAL REMARKS.

This Electric Light Installation has been fitted in accordance with the Rules, tested under full load and found satisfactory.

It is submitted that this vessel is eligible for THE RECORD. Electric Light

5/8/21

Surveyor to Lloyd's Register of Shipping.

Committee's Minute TUE. 17 JAN. 1922