

# REPORT ON ELECTRIC LIGHTING INSTALLATION. No. 2916

Port of Kobe Date of First Survey 3<sup>rd</sup> May 1920 Date of Last Survey 27<sup>th</sup> May 1920 No. of Visits 9  
 No. in Single Ser. Str. "ETNA MARU" Port belonging to Osaka  
 g. Book Osaka Built at Osaka By whom The Osaka Iron Works, Ltd When built 1920  
 Owners Kokusai Kisen Kabushiki Kaisha Owners' Address Kobe  
 Card No. 944 Electric Light Installation fitted by The Osaka Iron Works, Ltd When fitted 1920

## DESCRIPTION OF DYNAMO, ENGINE, ETC.

Enclosed self lubricating high speed non condensing single vertical engine D.C. compound dynamo.  
 Capacity of Dynamo 15 K.W. 150 Amperes at 100 Volts, whether continuous or alternating current Continuous  
 Where is Dynamo fixed Stbd. side on platform of Eng. Rm. Whether single or double wire system is used Double Wire System  
 Position of Main Switch Board at the dynamo having switches to groups For Main Circuit Breaker, Main Switch and 5 of lights, &c., as below branches wire + wireless circuit.  
 Positions of auxiliary switch boards and numbers of switches on each One for Engine Room, two for Cargo, one for navigation light, one for officers' Room.

If fuses are fitted on main switch board to the cables of main circuit fitted and on each auxiliary switch board to the cables of auxiliary circuits fitted and at each position where a cable is branched or reduced in size fitted and to each lamp circuit fitted  
 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 fitted  
 Are the fuses of non-oxidizable metal yes and constructed to fuse at an excess of 30 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 158 and 2 arc lamps arranged in the following groups:—

A Engine Room	37 lights each of	16	candle power requiring a total current of	19.61	Amperes
B Navigation	9 lights each of	"	candle power requiring a total current of	5.01	Amperes
C Officers' Room	77 lights each of	"	candle power requiring a total current of	40.81	Amperes
D Fore Cargo	16 lights each of	16 C.P. + 1 arc lamp	candle power requiring a total current of	25.48	Amperes
E aft. Cargo	16 lights each of	16 C.P. + 1 "	candle power requiring a total current of	25.48	Amperes
from Mast head light with	2 lamps each of	32	candle power requiring a total current of	2.12	Amperes
navigation line Side light with	2 lamps each of	"	candle power requiring a total current of	"	Amperes
Cargo lights of	6 Cargo light of 5 clustered each 16 C.P. + 2 arc lamps		candle power, whether incandescent or arc lights	both	

If arc lights, what protection is provided against fire, sparks, &c. Two arc lamps used and protected with glass globes and wire nets.  
 Where are the switches controlling the masthead and side lights placed at bridge deck.

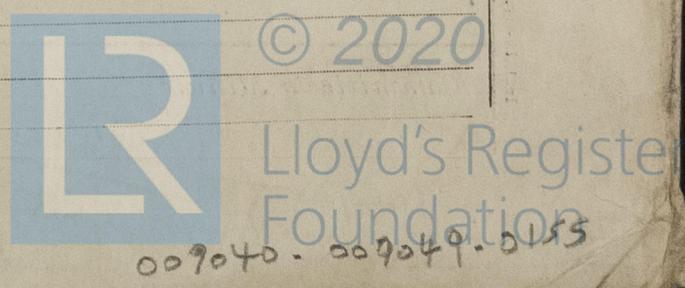
## DESCRIPTION OF CABLES.

Main cable carrying	150 Amperes, comprised of	Lead wires, each	180/18#	S.W.G. diameter, .325710	square inches total sectional area
Branch cables carrying	19.61 Amperes, comprised of	Lead + armoured wires, each	15/18#	S.W.G. diameter, .027129	square inches total sectional area
Branch cables carrying	9.01 Amperes, comprised of	Lead " "	7/18#	S.W.G. diameter, .012661	square inches total sectional area
Branch cables carrying	40.81 Amperes, comprised of	Lead + armoured wires, each	25/18#	S.W.G. diameter, .04522	square inches total sectional area
Leads to lamps carrying	153 Amperes, comprised of	Lead wires, each	1/18#	S.W.G. diameter, .001810	square inches total sectional area
Cargo light cables carrying	25.48 Amperes, comprised of	armoured wires, each	19/18#	S.W.G. diameter, .03436	square inches total sectional area

## DESCRIPTION OF INSULATION, PROTECTION, ETC.

Officers Room and Crew's quarters lead covered wire throughout wooden covers, Engine and Boiler space + Cargo hatches armoured wire or through galvanized wrought iron pipes.  
 Joints in cables, how made, insulated, and protected Porcelain Box or Cast iron Box are used.

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



**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 By the use of galvanized wrought iron pipe

What special protection has been provided for the cables near galleys or oil lamps or other sources of heat By the use of armoured wire

What special protection has been provided for the cables near boiler casings By the use of armoured wire

What special protection has been provided for the cables in engine room By the use of armoured wire or galvanized W.I. pipe as covers.

How are cables carried through beams covered with lead sheet through bulkheads, &c. By gland nut with Indian rubber packing complete.

How are cables carried through decks Through a galvanized W.I. pipe with flanges fixed to deck

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 By the use of armoured wire or wired through galvanized W.I. pipes.

Are any lamps fitted in coal bunkers or spaces which may at times be used for cargo, coals, or baggage No

If so, how are the lamp fittings and cable terminals specially protected ✓

Where are the main switches and fuses for these lights fitted ✓

If in the spaces, how are they specially protected ✓

Are any switches or fuses fitted in bunkers No

Cargo light cables, whether portable or permanently fixed portable How fixed By plug to socket.

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 ✓

Is the installation supplied with a voltmeter yes, and with an amperemeter yes, fixed at switchboard.

**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.

Y. Kiyozumi Electrical Engineers

Date 31<sup>st</sup> May, 1920

**COMPASSES.**

Distance between dynamo or electric motors and standard compass about 185'

Distance between dynamo or electric motors and steering compass " 152'

The nearest cables to the compasses are as follows:—

A cable carrying	<u>2.12</u>	Amperes	<u>8'</u>	feet from standard compass	<u>9'</u>	feet from steering compass
A cable carrying	<u>1.06</u>	Amperes	<u>30'</u>	feet from standard compass	<u>8.5'</u>	feet from steering compass
A cable carrying	<u>0.53</u>	Amperes	<u>7'</u>	feet from standard compass	<u>4'</u>	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 \_\_\_\_\_ degrees on \_\_\_\_\_ course in the case of the standard compass and \_\_\_\_\_ degrees on \_\_\_\_\_ course in the case of the steering compass.

G. Yuruta Builder's Signature. Date 31<sup>st</sup> May, 1920



**GENERAL REMARKS.**

The installation has been fitted in accordance with the requirements of the Rules and worked satisfactorily on trials.

Elec Lt  
Kell  
1/10/20

Surveyor to Lloyd's Register of Shipping.

Committee's Minute

TUE OCT 15 1920



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