

# REPORT ON ELECTRIC LIGHTING INSTALLATION. No. 2444

of Kobe Date of First Survey 13 Jan'y Date of Last Survey 1<sup>st</sup> Feb'y No. of Visits 8  
 on the Steel S.S. "Tokufuku Maru" Port belonging to Kobe  
 Built at Kobe By whom The Kawasaki Dockyard Co. Ltd. When built 1919  
The Kawasaki Dockyard Co. Ltd. Owners' Address Kobe  
 No. 433 Electric Light Installation fitted by The Kawasaki Dockyard Co. Ltd. When fitted 1919

## DESCRIPTION OF DYNAMO, ENGINE, ETC.

Two sets of compound dynamo coupled directly to the single cylinder automatic off vertical enclosed engine with forced lubrication.  
 "dia. 6" stroke 450 R.P.M.

Capacity of Dynamo 170 Amperes at 100 Volts, whether continuous or alternating current Continuous

Where is Dynamo fixed in the engine room.

Position of Main Switch Board in the engine room having switches to groups A, B, C, D, E & etc of lights, &c., as below

Positions of auxiliary switch boards and numbers of switches on each 2 in the engine room, 4 on the shelter deck,

on the lower bridge and 1 on the after main having one main switch on

each board

Put 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 Yes

Rods 5.8 spool 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

Propeller 23 the cut outs of non-oxidizable metal Yes and constructed to fuse at an excess of 100 per cent over the normal current

down bolts 22.1 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, porcelain & marble are used.

Total number of lights provided for 163 lamps arranged in the following groups :-

<u>116 incandescent</u> lights each of <u>16</u> candle power requiring a total current of <u>52.0</u> Amperes
<u>13 incandescent</u> lights each of <u>5</u> candle power requiring a total current of <u>2.5</u> Amperes
<u>32 incandescent</u> lights each of <u>32</u> candle power requiring a total current of <u>36.0</u> Amperes
<u>2 arc</u> lights each of <u>1,200</u> candle power requiring a total current of <u>9.0</u> Amperes
<u>lights each of</u> candle power requiring a total current of <u>Amperes</u>

2 Mast head light with 2 lamps each of 32 candle power requiring a total current of 2.24 Amperes

2 Side light with 2 lamps each of 32 candle power requiring a total current of 2.24 Amperes

5 incandescent and 2 arc Cargo lights of 128 & 1,200 candle power, whether incandescent or arc lights incandescent and arc lights.

If arc lights, what protection is provided against fire, sparks, &c. Adequate fuses are inserted and arc is protected

with inner and outer globes.

Where are the switches controlling the masthead and side lights placed in the chart room.

## DESCRIPTION OF CABLES.

Main cable carrying <u>170.0</u> Amperes, comprised of <u>250</u> wires, each <u>No. 20</u> L.S.G. diameter, <u>0.2500</u> square inches total sectional area
Branch cables carrying <u>27.0</u> Amperes, comprised of <u>6</u> wires, each <u>No. 16</u> L.S.G. diameter, <u>0.0192</u> square inch total sectional area
Branch cables carrying <u>18.5</u> Amperes, comprised of <u>6</u> wires, each <u>No. 16</u> L.S.G. diameter, <u>0.0192</u> square inches total sectional area
Branch cables carrying <u>14.0</u> Amperes, comprised of <u>234</u> wires, each <u>No. 38</u> L.S.G. diameter, <u>0.0066</u> square inch total sectional area
Branch cables carrying <u>15.5</u> Amperes, comprised of <u>234</u> wires, each <u>No. 38</u> L.S.G. diameter, <u>0.0066</u> square inches total sectional area
Branch cables carrying <u>24.5</u> Amperes, comprised of <u>7</u> wires, each <u>No. 16</u> L.S.G. diameter, <u>0.0224</u> square inches total sectional area
Leads to lamps carrying <u>0.5</u> Amperes, comprised of <u>1</u> wires, each <u>No. 18</u> L.S.G. diameter, <u>0.0018</u> square inches total sectional area
Cargo light cables carrying <u>4.5</u> Amperes, comprised of <u>283</u> wires, each <u>No. 38</u> L.S.G. diameter, <u>0.0080</u> square inches total sectional area

## DESCRIPTION OF INSULATION, PROTECTION, ETC.

Conductors are doubly insulated with india rubber and vulcanized rubber and tape.

Cables are protected against mechanical injury and chemical action by steel armoring and or lead covering according to the requirements.

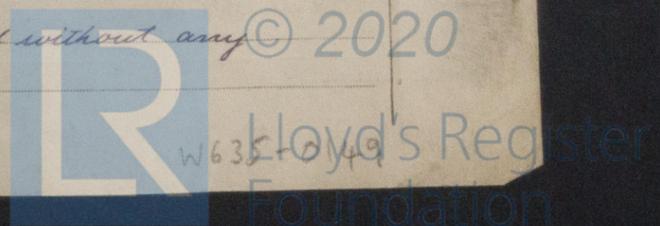
Joints in cables, how made, insulated, and protected Mechanical joints are made throughout and protected with water-tight cast iron boxes.

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.

Are there any joints in or branches from the cable leading from dynamo to main switch board None

How are the cables led through the ship, and how protected Cables are led unconcealed and without any additional protections those on the cables themselves.



**DESCRIPTION OF INSULATION, PROTECTION, ETC.—continued.**

Are they in places always accessible *They are all in accessible places*

What special protection has been provided for the cables in open alleyways or where exposed to weather or moisture *without any additional protections beside those on the cables themselves.*

What special protection has been provided for the cables near galleys or oil lamps or other sources of heat *as before*

What special protection has been provided for the cables near boiler casings *as before*

What special protection has been provided for the cables in engine room *In some parts where necessary the cables are led through iron pipes*

How are cables carried through beams *Pierced through and wood lined* through bulkheads, &c. *Pierced through and provided with water-tight glands*

How are cables carried through decks *Pierced and led through iron pipes*

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 *with lead covering and steel armoring on the cables themselves.*

Are any lamps fitted in coal bunkers or spaces which may at times be used for cargo, coals, or baggage *None*

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

Where are the main switches and cut outs for these lights fitted

If in the spaces, how are they specially protected

Are any switches or cut outs fitted in bunkers *None*

Cargo light cables, whether portable or permanently fixed *portable* How fixed *in the water-tight cast iron boxes*

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 amperemeter, fixed on a marble switch board.*

The copper used is guaranteed to have a conductivity of *98* 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.

*S. Tada* Electrical Engineers

Date *20th Feb. 19*

**COMPASSES.**

Distance between dynamo or electric motors and standard compass	<i>Dynamo to Standard Compass</i>	<i>115 feet</i>
	<i>Motor</i>	<i>110 feet</i>
Distance between dynamo or electric motors and steering compass	<i>Dynamo " Steering "</i>	<i>105 feet</i>
	<i>Motor</i>	<i>100 feet</i>

The nearest cables to the compasses are as follows:—

A cable carrying	<i>5.6</i> Amperes	<i>6</i> feet from standard compass	<i>1.5</i> feet from steering compass
A cable carrying	<i>13.5</i> Amperes	<i>1.7</i> feet from standard compass	<i>1.3</i> 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

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.

*Kawasaki Dockyard Co., Ltd.*

Per *J. Takane* Secretary

Builder's Signature. Date

**GENERAL REMARKS.**

*This installation has been fitted in accordance with the Rules requirements & worked satisfactorily on trials*

*this vessel is eligible for THE RECORD. Elec. light.* *AWD 16/4/19*

*A. L. Jones*  
Surveyor to Lloyd's Register of British and Foreign Shipping.

Committee's Minute *THU. 17. APR. 1919*

THE SURVEYORS ARE REQUESTED NOT TO WRITE ACROSS THIS MARGIN.

REPORT FORM No. 13.



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