

REPORT ON ELECTRIC LIGHTING INSTALLATION. No. 4187.

Port of *Kobe* Date of First Survey *5-7-23* Date of Last Survey *7-12-23* No. of Visits *6*
 No. in on the ~~Iron or Steel~~ *S.S. "KWAYO MARU"* Port belonging to *Nakanishi*
 Reg. Book Built at *Kobe, Amosima* By whom *Osaka Iron Works* When built *1923*
 Owners *Osaka Iron Works* Owners' Address
 Yard No. *963* Electric Light Installation fitted by *Osaka Iron Works* When fitted *1923*

DESCRIPTION OF DYNAMO, ENGINE, ETC.

Multipole compound wound dynamo driven direct - by 13 H.P. single cylinder (6" x 4") steam engine (550 R.P.M.)

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

Where is Dynamo fixed *Starb. side of engine room* Whether single or double wire system is used *double*

Position of Main Switch Board *on bunker bulkhead, starb. side* having switches to groups *5* of lights, &c., as below

Positions of auxiliary switch boards and numbers of switches on each *One for eng. & boiler rooms, one for officers' & crews' quarters, one for cargo lamps, one for navigation lamps, one for motors.*

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 *130* arranged in the following groups:—

A *Eng. & Bl. Rm.* 26 lights each of *16* candle power requiring a total current of *6* Amperes

B *Offrs. & Crews Qu.* 65 lights each of *16* candle power requiring a total current of *13* Amperes

C *Cargo Space* 26 lights each of *various* candle power requiring a total current of *14.8* Amperes

D *Navigation* 13 lights each of *16 & 32* candle power requiring a total current of *6.4* Amperes

E lights each of candle power requiring a total current of Amperes

2 Mast head light with *1* lamps each of *32* candle power requiring a total current of *2.12* Amperes

2 Side light with *1* lamps each of *32* candle power requiring a total current of *2.12* Amperes

6 cluster & 2 single Cargo lights of *each of 64* candle power, whether incandescent or arc lights *incandescent*

If arc lights, what protection is provided against fire, sparks, &c. *✓* *44.44*

Where are the switches controlling the masthead and side lights placed *In chart-room*

DESCRIPTION OF CABLES.

Main cable carrying *100* Amperes, comprised of *2 x 40* wires, each *21* S.W.G. diameter, *0.0643* square inches total sectional area

Branch cables carrying *13* Amperes, comprised of *25* wires, each *21* S.W.G. diameter, *0.0200* square inches total sectional area

Branch cables carrying *6.4* Amperes, comprised of *11* wires, each *21* S.W.G. diameter, *0.0088* square inches total sectional area

Leads to lamps carrying *0.2* Amperes, comprised of *1* wires, each *18* S.W.G. diameter, *0.0018* square inches total sectional area

Cargo light cables carrying *14.8* Amperes, comprised of *25* wires, each *21* S.W.G. diameter, *0.0200* square inches total sectional area

DESCRIPTION OF INSULATION, PROTECTION, ETC.

Officers & crews quarters & cabin:— Lead covered wire through wooden covers. Eng. & Bl. rooms, cargo spaces:— armoured wire, or through galvanised wrought-iron pipes.

Joints in cables, how made, insulated, and protected *Porcelain & anti-rust boxes.*

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 *Armoured wire, and protected in galvanised W.I. 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 *by use of Armoured wire*

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

What special protection has been provided for the cables near boiler casings *Armoured wire*

What special protection has been provided for the cables in engine room *Armoured wire & galvan. W.I. pipes*

How are cables carried through beams *covered with sheet-lead* through bulkheads, &c. *W.T. glands*

How are cables carried through decks *through galvanised W.I. 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 *Armoured wires, or wires through galvanised 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*

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 on 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.

N. Mitsunori Electrical Engineers

Date *14th Dec. 1923.*

COMPASSES.

Distance between dynamo or electric motors and standard compass *90'-0"*

Distance between dynamo or electric motors and steering compass *136'-0"*

The nearest cables to the compasses are as follows:—

A cable carrying	Amperes	feet from standard compass	feet from steering compass
<i>1.06</i>	<i>3'-7"</i>		
<i>0.2</i>	<i>3'-7"</i>		

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.

T. Nishimaki

Builder's Signature. Date *14th Dec. 1923.*

GENERAL REMARKS.

This installation has been fitted in accordance with the requirements of the Rules. The materials & workmanship are good, and the installation was found satisfactory when tried under full working conditions. This vessel is eligible in my opinion for the notation "Elec. Light."

Fee £ 150

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

L. B. F. Young Surveyor to Lloyd's Register of Shipping.

Committee's Minute

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