

REPORT ON ELECTRIC LIGHTING INSTALLATION. No. 2414

Port of KOBE. Date of first Survey 6 Dec Date of Last Survey 8 Jan 1919 No. of Visits 8
 No. in on the Iron or Steel S.S. TOFUKU MARU. Port belonging to KOBE JAPAN.
 Reg. Book Built at KOBE, By whom The Kawasaki Dockyard Co Ltd. When built 1919.
 Owners The Kawasaki Dockyard Co Ltd. Owners' Address Kobe (Yd No. 429)
 Yard No. 429. Electric Light Installation fitted by The Kawasaki Dockyard Co Ltd When fitted 1918-19

DESCRIPTION OF DYNAMO, ENGINE, ETC.

Two sets of compound dynamo coupled directly to the single cylinder automatic cut-off vertical enclosed engine with forced natural lubrication.
 8" dia. 6" stroke 450 r/m.

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

Where is Dynamo fixed in the engine room Whether single or double wire system is used double

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 1 in the engine room, 1 in the boiler room, 4 on the shelter deck, 1 on the lower bridge and 1 on the after main, having one main switch on each board

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-oxidisable metal Yes and constructed to fuse at an excess of 100 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, porcelain & marble are used

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

A	116	lights each of	16	candle power requiring a total current of	52.0	Amperes
B	13	lights each of	5	candle power requiring a total current of	2.5	Amperes
C	32	lights each of	32	candle power requiring a total current of	36.0	Amperes
D	2	lights each of	1,200	candle power requiring a total current of	9.0	Amperes
E		lights each of		candle power requiring a total current of		Amperes
	2	Mast head lights, 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	150.0 Amperes, comprised of	150 wires, each No. 20	S.W.G. diameter, 0.1500	square inches total sectional area
Branch cables carrying	27.0 Amperes, comprised of	6 wires, each No. 16	S.W.G. diameter, 0.0192	square inch total sectional area
Branch cables carrying	18.5 Amperes, comprised of	6 wires, each No. 16	S.W.G. diameter, 0.0192	square inches total sectional area
Branch cables carrying	14.0 Amperes, comprised of	2 wires, each No. 16	S.W.G. diameter, 0.0064	square inches total sectional area
Branch cables carrying	15.5 Amperes, comprised of	2 wires, each No. 16	S.W.G. diameter, 0.0064	square inches total sectional area
Branch cables carrying	24.5 Amperes, comprised of	14 wires, each No. 20	S.W.G. diameter, 0.0140	square inch total sectional area
Leads to lamps carrying	0.5 Amperes, comprised of	1 wires, each No. 18	S.W.G. diameter, 0.0018	square inches total sectional area
Cargo light cables carrying	4.5 Amperes, comprised of	283 wires, each No. 38	S.W.G. diameter, 0.0080	square inches total sectional area

DESCRIPTION OF INSULATION, PROTECTION, ETC.

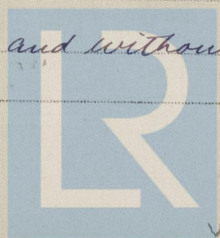
Conductors are doubly insulated with india rubber and vulcanized rubber and tape. Cables are protected against mechanical injury and chemical action by steel armoring or lead covering according to the requirements.

Joints in cables, how made, insulated, and protected Mechanical joints are made throughout and protected with water-tight 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 None

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



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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 protection 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 & wood lined through bulkheads, &c. Pierced through & 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.*

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 fuses for these lights fitted

If in the spaces, how are they specially protected

Are any switches or fuses fitted in bunkers *None.*

Cargo light cables, whether portable or permanently fixed *portable* How fixed *in the W.T. 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

Is the installation supplied with a voltmeter *Yes* and with an amperemeter *Yes, 2 ammeters, fixed on a marble 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.

S. Tada

Electrical Engineers

Date

COMPASSES.

Distance between dynamo or electric motors and standard compass

Dynamo to standard compass

115 ft.

Distance between dynamo or electric motors and steering compass

Dynamo " steering "

110 ft.

Motor " " "

105 ft.

100 ft.

The nearest cables to the compasses are as follows:—

A cable carrying *5.6* Amperes *6* feet from standard compass *15* feet from steering compass

A cable carrying *13.5* Amperes *17* feet from standard compass *13* 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 *Takayama*

Builder's Signature.

Date

GENERAL REMARKS.

Secretary.

This installation has been fitted in accordance with the Rule Requirements & worked satisfactorily on trial

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

AWD 17/3/19.

A. L. Jones

Surveyor to Lloyd's Register of Shipping.

Committee's Minute

FRI. 21 MAR. 1919



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