

## REPORT ON ELECTRIC LIGHTING INSTALLATION. No. 3183

Port of Kobe Date of First Survey Mar. 2<sup>nd</sup> 1921 Date of Last Survey May 10<sup>th</sup> 1921 No. of Visits 6  
 No. in Reg. Book on the ~~Iron~~ Steel Screw Steamer "BUSHO MARU" Port belonging to Osaka  
 Built at Osaka By whom The Osaka Iron Works, Ltd. When built 1921  
 Owners Osaka Shosen Kaisha Owners' Address Osaka  
 Yard No. 985 Electric Light Installation fitted by The Osaka Iron Works, Ltd. When fitted 1921

## DESCRIPTION OF DYNAMO, ENGINE, ETC.

Enclosed self lubricating high speed non condensing single vertical engine direct current compound dynamo.

Capacity of Dynamo 7 K.W. 70 Amperes at 100 Volts, whether continuous or alternating current Continuous  
 Where is Dynamo fixed Bottom platform in Eng. Room Whether single or double wire system is used Double  
 Position of Main Switch Board Close to dynamo having switches to groups A.B.C.D.E.F. + G. of lights, &c., as below  
 Positions of auxiliary switch boards and numbers of switches on each One for Crew Space, One for Machinery Space  
One for Fore Cargo, One for Aft. Cargo, One for passenger accommodation, One for  
Wireless Circuit, One for Electric fan motors + One for navigation lights.  
 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 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

Total number of lights provided for 203 arranged in the following groups:—  
 A Crew space 14 lights each of 16 candle power requiring a total current of 2.8 Amperes  
 B Pass<sup>ng</sup> accomm. 104 lights each of 16 candle power requiring a total current of 20.8 Amperes  
 C Machinery space 44 lights each of 16 candle power requiring a total current of 8.8 Amperes  
 D Navig<sup>n</sup> lights 5 lights each of 10, 24 + 32 candle power requiring a total current of 5.5 Amperes  
 E Aft. Cargo 16 " " " 10 candle power requiring a " " " 5 Amperes  
 F Fore 16 lights each of 10 candle power requiring a total current of 5 Amperes  
 G Electric fan motors 23 and Socket fan motor 6 " " " " 12.4 Amperes  
2 Mast head light with 2 lamps each of 32 candle power requiring a total current of 2.12 Amperes  
2 Side light with 2 lamps each of 32 candle power requiring a total current of 2.12 Amperes  
6 Cargo lights of 5 clusters each 16 candle power, whether incandescent or are lights incandescent  
+ portable 2 Nitrogen lamp each 200 Watts

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

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

## DESCRIPTION OF CABLES.

Main cable carrying	<u>70</u> Amperes, comprised of <u>Lead 80</u> wires, each	<u>18</u> <sup>#</sup>	S.W.G. diameter, <u>0.14476</u> square inches total sectional area
	<u>2.8</u> " " <u>armoured</u> "	<u>16</u> <sup>#</sup>	<u>0.00322</u> ✓
Branch cables carrying	<u>20.8</u> Amperes, comprised of <u>Lead 15</u> wires, each	<u>18</u> <sup>#</sup>	S.W.G. diameter, <u>0.02714</u> square inches total sectional area
	<u>8.8</u> " " <u>armoured 7</u> "	<u>21</u> <sup>#</sup>	<u>0.01266</u> ✓
Branch cables carrying	<u>5.5</u> Amperes, comprised of <u>Lead 7</u> wires, each	<u>18</u> <sup>#</sup>	S.W.G. diameter, <u>0.00562</u> square inches total sectional area
	<u>12.4</u> " " " <u>7</u> "	<u>18</u> <sup>#</sup>	<u>0.01266</u> ✓
Leads to lamps carrying	<u>0.2</u> Amperes, comprised of <u>Lead 1</u> wires, each	<u>18</u> <sup>#</sup>	S.W.G. diameter, <u>0.00181</u> square inches total sectional area
Cargo light cables carrying	<u>5</u> Amperes, comprised of <u>armoured 7</u> wires, each	<u>19</u> <sup>#</sup>	S.W.G. diameter, <u>0.00879</u> square inches total sectional area
	<u>5</u> " " " <u>7</u> "	<u>19</u> <sup>#</sup>	<u>0.00879</u> ✓

## DESCRIPTION OF INSULATION, PROTECTION, ETC.

Officers Engineers and Stale Rooms Rubber lead covered Engine and Boiler space and holds armoured or through galvanized iron tubes.

Joints in cables, how made, insulated, and protected Porcelain junctions 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 clipped to under side of deck + armoured



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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 the use of galvanized wrought iron pipes.

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

What special protection has been provided for the cables near boiler casings armoured.

What special protection has been provided for the cables in engine room armoured wire.

How are cables carried through beams Special sheet lead fittings through bulkheads, &c. gland with rubber packing.

How are cables carried through decks Galvanized wrought iron pipe with flanges fixed to deck.

Are any cables run through coal bunkers no or cargo spaces no or spaces which may be used for carrying cargo, stores, or baggage yes

If so, how are they protected Armoured

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 plug and 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 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 yes

Are any switches, fuses, or joints of cables fitted in the pump room or companion no

How are the lamps specially protected in places liable to the accumulation of vapour or gas no

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.

G. Kigozumi Electrical Engineers

Date June 1<sup>st</sup> 1921

COMPASSES.

Distance between dynamo or electric motors and standard compass about 140 feet

Distance between dynamo or electric motors and steering compass " 105 feet.

The nearest cables to the compasses are as follows:—

A cable carrying	2.12	Amperes	25	feet from standard compass	30	feet from steering compass
A cable carrying	2.12	Amperes	9	feet from standard compass	9	feet from steering compass
A cable carrying	.8	Amperes	8	feet from standard compass	9	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.

G. Gennaro Builder's Signature. Date \_\_\_\_\_

GENERAL REMARKS.

This Installation has been fitted in accordance with the requirements of the Rules and worked satisfactorily on trial.

It is submitted that this vessel is eligible for THE RECORD, & Lee Light

Reck  
5/8/21

R. B. Satchell & Co.  
Surveyor to Lloyd's Register of Shipping.

Committee's Minute FRI. 5 AUG. 1921

THE SURVEYORS ARE REQUESTED NOT TO WRITE ACROSS THIS MARGIN.