

## REPORT ON ELECTRIC LIGHTING INSTALLATION. No. 3980

Port of Kobe Date of First Survey Feb. 25<sup>th</sup> 1923 Date of Last Survey Apr. 11<sup>th</sup> 1923 No. of Visits 5  
 No. in on the Steel 3/5. "HEIYO MARU" Port belonging to Habu  
 Reg. Book Built at Osaka Iron Works, Imboshima Yd. By whom Osaka Iron Works, Imboshima Yd. When built 1922  
 Owners Nippon Kisen Kaisha Owners' Address % Osaka Shosen Building, 5 Kojima-dori, Kobe  
 Yard No. 961 Electric Light Installation fitted by Osaka Iron Works, Imboshima Yd. When fitted 1921

## DESCRIPTION OF DYNAMO, ENGINE, ETC.

Direct Current multipole Compound Dynamo, Direct driven by 13 H.P. 550 R.  
 p.m. Single Cylinder (6" x 4") Engine.

Capacity of Dynamo 10 K.W. 100 Amperes at 100 Volts, whether continuous or alternating current D. C.

Where is Dynamo fixed St. board side E.R. platform Whether single or double wire system is used Double wire system

Position of Main Switch Board On the bulkhead of st. board Coal bunker having switches to groups Five of lights, &c., as below

Positions of auxiliary switch boards and numbers of switches on each One for Engine + Boiler Room, One for Officers' room, One for Cargo lamps, One for Fan Motors, One for Navigation lamps.

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 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

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 116 arranged in the following groups:—

A Engine Room	25 lights each of	16	candle power requiring a total current of	5.25	Amperes
B Officers' Room	51 lights each of	16	candle power requiring a total current of	10.71	Amperes
C Fan Motor	lights each of		candle power requiring a total current of	3.5	Amperes
D Navigation	14 lights each of	16 + 32	candle power requiring a total current of	6.34	Amperes
E Cargo lamp	26 lights each of Arc lamp + 16		candle power requiring a total current of	15.04	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

Cargo lights of 6 clusters for each 4 x 16 + 2 arc lamps. candle power, whether incandescent or arc lights Incandescent

If arc lights, what protection is provided against fire, sparks, &c. Two Arc lamps are used + protection is glass globes covered; requiring total current of 10 amps.

Where are the switches controlling the masthead and side lights placed In Chart Room.

## DESCRIPTION OF CABLES.

Main cable carrying	<u>100</u> Amperes, comprised of	<u>2 x 30</u> wires, each	<u>20</u> S.W.G. diameter, <u>0.067</u> square inches total sectional area
Branch cables carrying	<u>5.25</u> Amperes, comprised of	<u>7</u> wires, each	<u>18</u> S.W.G. diameter, <u>0.01267</u> square inches total sectional area
Branch cables carrying	<u>10.71</u> Amperes, comprised of	<u>15</u> wires, each	<u>18</u> S.W.G. diameter, <u>0.02715</u> square inches total sectional area
Leads to lamps carrying	<u>0.21</u> Amperes, comprised of	<u>1</u> wires, each	<u>18</u> S.W.G. diameter, <u>0.00181</u> square inches total sectional area
Cargo light cables carrying	<u>15.04</u> Amperes, comprised of	<u>7</u> wires, each	<u>18</u> S.W.G. diameter, <u>0.01267</u> square inches total sectional area

## DESCRIPTION OF INSULATION, PROTECTION, ETC.

Officers' Room + Crew's Quarters:— Lead covered wire through wooden covers.  
 Engine + 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 By the use of armoured wire + protected through galvanized wrought iron 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 the use of armoured wire.

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. pipes as covers.

How are cables carried through beams Covered with lead sheet through bulkheads, &c. By gland nut with Indian rubber backing.

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

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 wires 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 nothing.

If so, how are the lamp fittings and cable terminals specially protected no

Where are the main switches and fuses for these lights fitted no

If in the spaces, how are they specially protected no

Are any switches or fuses fitted in bunkers no

Cargo light cables, whether portable or permanently fixed portable How fixed no

In vessels fitted on the single wire system, how is the dynamo terminal fixed to the hull of vessel no

How are the returns from the lamps connected to the hull no

Are all the joints with the hull in accessible positions no

Is the installation supplied with a voltmeter yes, and with an amperemeter yes, fixed on main switchboards.

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.

J. Tishimatsu



Electrical Engineers

Date

COMPASSES.

Distance between dynamo or electric motors and standard compass 90 feet

Distance between dynamo or electric motors and steering compass 136 feet

The nearest cables to the compasses are as follows:—

Cable carrying	Amperes	Distance from standard compass	Distance from steering compass
A cable carrying <u>1.06</u>	<u>3' 7"</u>	feet from standard compass	feet from steering compass
A cable carrying <u>0.21</u>	<u>"</u>	feet from standard compass	feet from steering compass
A cable carrying		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 nil degrees on all course in the case of the standard compass and nil course in the case of the steering compass.

J. Tishimatsu



Builder's Signature.

Date

GENERAL REMARKS.

This Installation has been fitted according to the Rules + as stated in this report + worked satisfactorily on full load trial.

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

J. T. G. Fry For T. G. Fry & Self

Surveyor to Lloyd's Register of Shipping.

Committee's Minute FRI AUG. 10 1923

THE SURVEYORS ARE REQUESTED NOT TO WRITE ACROSS THIS MARGIN.



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