

JUN 9 1922
No. 3516

REPORT ON ELECTRIC LIGHTING INSTALLATION.

Port of *Kobe* Date of First Survey *27th March* Date of Last Survey *18th Apr. 1922* No. of Visits *NINE*.
 No. in Reg. Book on the Iron or Steel *S/S "IBUKISAN MARU"* Port belonging to *KOBE*.
 Built at *TAMA, OKAYAMAKEN* By whom *MITSUMI BUSSAN SHIPBUILDING DEPT.* When built *1922*
 Owners *MITSUMI BUSSAN Co LTD.* Owners' Address *KOBE*.
 Yard No. *35* Electric Light Installation fitted by *MITSUMI BUSSAN SHIPBUILDING DEPT.* When fitted *1922*

DESCRIPTION OF DYNAMO, ENGINE, ETC.

*Two sets of Compound wound D.C. One 15^{Kw.} + One 10^{Kw.} Dynamos, each coupled directly to the vertical single cylinder, automatic cut-off enclosed non-condensing engine with forced lubrication and { 7th cyl. 5th stroke 500 R/M. 120 lbs/cyl for 15^{Kw.} }
 { 6th " 4th " 650 " " 100 " " 10^{Kw.} } respectively*

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

Where is Dynamo fixed *Starboard side in Engine Room* Whether single or double wire system is used *Double wire system*

Position of Main Switch Board *Starboard side in Engine Room* having switches to groups *A, B, C, D and E* of lights, &c., as below

Positions of auxiliary switch boards and numbers of switches on each *One in the Engine Room, One in the Boiler Room, One on the upper deck, 3 on the Awaiting Deck and one on the Lower Bridge, 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-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, Porcelain and Marble are used*

Total number of lights provided for *149* arranged in the following groups:—

A	6	lights each of	1000 and 16x6 ^{lamp}	candle power requiring a total current of	11	Amperes
B	92	lights each of	16x32	candle power requiring a total current of	14	Amperes
C	6	lights each of	1000 and 16x6 ^{lamp}	candle power requiring a total current of	1.1	Amperes
D	32 } Common to one Switch 13 }	lights each of	16	candle power requiring a total current of	6.4 2.6	Amperes
E	1 Motor	lights each of	5 HP	candle power requiring a total current of	37	Amperes
	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
	1 Stern light with	1 lamp of	32	Candle power " " " " "	1.12	"
	12 Cargo lights of	96 and 1000		candle power, whether incandescent or arc lights	Incandescent	

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

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

DESCRIPTION OF CABLES.

Main cable carrying	150	Amperes, comprised of	37	wires, each	# 16	S.W.G. diameter,	.1190	square inches total sectional area
Main cable carrying	100	Amperes, comprised of	37	wires, each	# 16	S.W.G. diameter,	.1190	square inches total sectional area
Branch cables carrying	11	" " " "	19	" " "	# 19	" " "	.0239	" " " " " "
Branch cables carrying	14	Amperes, comprised of	19	wires, each	# 17	S.W.G. diameter,	.0467	square inches total sectional area
" " " "	6.4	" " " "	7	" " "	# 21	" " "	.0056	" " " " " "
Branch cables carrying	2.6	Amperes, comprised of	7	wires, each	# 21	S.W.G. diameter,	.0056	square inches total sectional area
" " " "	37	" " " "	19	" " "	# 16	" " "	.0611	" " " " " "
Leads to lamps carrying	0.5	Amperes, comprised of	1	wires, each	# 20	S.W.G. diameter,	.0018	square inches total sectional area
Cargo light cables carrying	5	Amperes, comprised of	108	wires, each	# 36	S.W.G. diameter,	.00488	square inches total sectional area

DESCRIPTION OF INSULATION, PROTECTION, ETC.

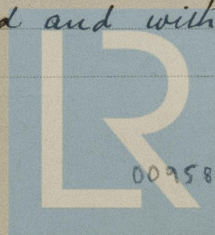
Conductors are doubly insulated with india rubber and vulcanized rubber tape, cables are protected against mechanical injury and chemical action by steel armored or lead covering according to the requirements.

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, and the flux used not containing acids or other corrosive substances *None* 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 besides that on the 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 protections besides that on the cables themselves.*

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

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

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

How are cables carried through beams *With lead bushing* through bulkheads, &c. *water tight gland.*

How are cables carried through decks *Led through iron pipes.*

Are any cables run through coal bunkers *none* 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 cable 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 *None*

Where are the main switches and fuses for these lights fitted *None*

If in the spaces, how are they specially protected *None*

Are any switches or fuses 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 *None*

How are the returns from the lamps connected to the hull *None*

Are all the joints with the hull in accessible positions *None*

Is the installation supplied with a voltmeter *Yes* and with an amperemeter *Yes*, fixed *On the main S.B.*

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.

M. Saeki

Electrical Engineers

Date 6th May 1922

COMPASSES.

Distance between dynamo or electric motors and standard compass *Dynamo to standard compass 95 ft.*Distance between dynamo or electric motors and steering compass *" " steering " 93 ft.*The nearest cables to the compasses are as follows:— *Motor " standard " 90 ft.**" " steering " 128 ft.*

A cable carrying 56 Amperes 6 feet from standard compass 12 feet from steering compass

A cable carrying 37 Amperes 12 feet from standard compass 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 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 course in the case of the steering compass.

MITSUBUSHI KAISHA, LTD.

S. Ukai

Builder's Signature. Date 6th May 1922

SHIPBUILDING DEPARTMENT.

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. Elec. Light. L.L.

Fee: ¥225⁰⁰APPLIED FOR APRIL 17th 1922. RECEIVED.

A. Watt.

Surveyor to Lloyd's Register of Shipping.

Committee's Minute TUE. 12 JUN. 1922



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