

REPORT ON ELECTRIC LIGHTING INSTALLATION. No. 1180

Port of **NAGASAKI.** Date of First Survey *1st April* Date of Last Survey *11th May 1910* No. of Visits *8*
No. in Reg. Book *on the Iron or Steel* *twin s. s. "Arabia Maru"* Port belonging to *Osaka*
Built at *Nagasaki* By whom *Mitsubishi Zosen Kaisha* When built *1918*
Owners *Osaka Shosen Kaisha* Owners' Address *Osaka*
Yard No. *271* Electric Light Installation fitted by *Mitsubishi Zosen Kaisha* When fitted *1918*

DESCRIPTION OF DYNAMO, ENGINE, ETC.

Two sets of a compound wound continuous current dynamo, on the same bed-plate with a vertical engine.

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

Where is Dynamo fixed In chest recess in Engine room. ✓

Position of Main Switch Board On bulkhead aft of dynamo having switches to groups 89 to 120 of lights, &c., as below

Positions of auxiliary switch boards and numbers of switches on each Two in fore part on boat deck; two in fore part, eight in middle part, and two in aft part on shelter deck; three in middle part, and one in aft part on upper deck; four in engine room.

If cut outs 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 No.

If vessel is wired on the double wire system are cut outs fitted to both flow and return wires or cables of all circuits including lamp circuits Yes.

Are the cut outs of non-oxidizable metal Yes and constructed to fuse at an excess of 50 per cent over the normal current

Are all cut outs 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 cut-outs constructed of incombustible materials and fitted on incombustible bases Yes.

Total number of lights provided for 5 circuits arranged in the following groups:—

| A | Shelter deck | lights each of | 6. 7. 29. 35. 12. | — | candle power requiring a total current of | 34.9 | Amperes | | |
|---|--|----------------|-------------------|--------|---|------|---------|--|--|
| B | Upper deck | lights each of | 2. 44. 56. 2 | — | candle power requiring a total current of | 28.8 | Amperes | | |
| C | Engine room | lights each of | — 79. 41. — | — | candle power requiring a total current of | 54.3 | Amperes | | |
| D | Fore cargo | lights each of | — 7. — 1. 24 | NITRAL | candle power requiring a total current of | 54.3 | Amperes | | |
| E | aft cargo | lights each of | — — — — 1. 24 | | candle power requiring a total current of | 47.0 | Amperes | | |
| | Two Mast head light with ^{one double} lamps each of | | 32 | | candle power requiring a total current of | 1.12 | Amperes | | |
| | Two Side light with ^{do.} lamps each of | | 32 | | candle power requiring a total current of | 1.12 | Amperes | | |
| | One Morse code signal lamp | | 6 c 6 sp. | | | 1.26 | Amperes | | |
| | Two Cargo lights of | | 1000 | | | | | | |
| | Twelve " " " | | 200 | | | | | | |

candle power, whether incandescent or are lights Incandescent

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

DESCRIPTION OF CABLES.

| | | | | | | | | |
|-----------------------------|-------|-----------------------|-----|-------------|----|------------------|---------|------------------------------------|
| Main cable carrying | 150 | Amperes, comprised of | 37 | wires, each | 15 | L.S.G. diameter, | 0.1544 | square inches total sectional area |
| Branch cables carrying | 521.3 | Amperes, comprised of | 19 | wires, each | 16 | L.S.G. diameter, | 0.0624 | square inches total sectional area |
| Branch cables carrying | 9.44 | Amperes, comprised of | 7 | wires, each | 20 | L.S.G. diameter, | 0.0070 | square inches total sectional area |
| Leads to lamps carrying | 56 | Amperes, comprised of | 1 | wires, each | 18 | L.S.G. diameter, | 0.0018 | square inches total sectional area |
| Cargo light cables carrying | 7 | Amperes, comprised of | 283 | wires, each | 38 | L.S.G. diameter, | 0.00792 | square inches total sectional area |

DESCRIPTION OF INSULATION

DESCRIPTION OF INSULATION, PROTECTION, ETC.

Wires and cables are composed of tinned copper insulated with pure india rubber, vulcanizing india rubber coated tape, and the whole vulcanized together, then lead covered, or lead covered and armoured with galvanized iron wires.

Joints in cables, how made, insulated, and protected Made in brass pieces fitted on porcelain bases in submain board and distributing boards in tank cases, extension box of porcelain, and some joints in cast iron box are soldered and insulated with pure india rubber or india rubber coated tape.

Are all the joints of cables thoroughly soldered, resin only having been used as a flux 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 On the double wire distribution system and cables are protected by lead covers, or galvanized wires, or galvanized iron pipes.

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 *Protected by galvanized iron pipes, or galvanized iron wire armouring.*

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

What special protection has been provided for the cables near boiler casings *Galvanized iron wire armouring*

What special protection has been provided for the cables in engine room *Galvanized iron wire armouring or galvanized iron pipes.*

How are cables carried through beams *Lead bushes* through bulkheads, &c. *Water tight packing glands.*

How are cables carried through decks *Galvanized iron deck tubes.*

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 *Galvanized iron wire armouring, or galvanized iron pipes.*

Are any lamps fitted in coal bunkers or spaces which may at times be used for cargo, coals, or baggage *Yes.*

If so, how are the lamp fittings and cable terminals specially protected *Lamps are protected by strong cast iron cover.*

Where are the main switches and cut outs for these lights fitted *On shelter deck passage.*

If in the spaces, how are they specially protected *In tank case.*

Are any switches or cut-outs fitted in bunkers *No.*

Cargo light cables, whether portable or permanently fixed *Portable* How fixed *With fibre fork or fibre connector.*

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 *✓*

VESSELS BUILT FOR CARRYING PETROLEUM.

In vessels built for carrying petroleum, are all switches and cut-outs fitted in positions not liable to the accumulation of petroleum vapour or gas *✓*

Are any switches, cut outs, 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 installation is *two* supplied with a voltmeter and *an amperemeter* fixed *on switch board.*

The copper used is guaranteed to have a conductivity of *99.6* per cent. that of pure copper.

Insulation of cables is guaranteed to have a resistance of not less than *600* megohms per statute mile after 24 hours' immersion in seawater.

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.

NAGASAKI WORKS, MITSUBISHI ZOSEN KAISHA, LTD.

GENERAL MANAGER

Electrical Engineers

Date *16th May 1918*

COMPASSES.

Distance between dynamo or electric motors and standard compass *124 ft. from dynamo*

Distance between dynamo or electric motors and steering compass *120 ft. from dynamo.*

The nearest cables to the compasses are as follows:—

| A cable carrying | Amperes | feet from standard compass | feet from steering compass |
|------------------|----------|----------------------------|----------------------------|
| <i>5.6</i> | <i>9</i> | <i>7</i> | |
| <i>✓</i> | <i>✓</i> | <i>✓</i> | |
| <i>✓</i> | <i>✓</i> | <i>✓</i> | |

Have the compasses been adjusted with and without the electric installation at work at full power *Yes.*

The maximum deviation due to electric currents, etc., was found to be *nil* degrees on *any* course in the case of the standard compass and *nil* degrees on *any* course in the case of the steering compass.

NAGASAKI WORKS, MITSUBISHI ZOSEN KAISHA, LTD.

GENERAL MANAGER

Builder's Signature.

Date *16th May 1918*

GENERAL REMARKS.

This Electric Installation has been fitted in accordance with the Rules tested, and found satisfactory.

It is submitted that

THE RECORD. Elec. light-

J.W.D. 9/2/18

a.s. Williamson
Surveyor to Lloyd's Register of British and Foreign Shipping.

Committee's Minute

FRI. 12 JUL. 1918

THE SURVEYORS ARE REQUESTED NOT TO WRITE ACROSS THIS MARGIN.