

REPORT ON ELECTRIC LIGHTING INSTALLATION. No.

4376

Port of PHILADELPHIA Date of First Survey _____ Date of Last Survey MAY 4th 22 No. of Visits 35.
 No. in Reg. Book _____ on the ~~Iron~~ or Steel T.M.S. "CALIFORNIAN" Port belonging to NEW YORK.
 Built at CHESTER, PA. By whom MERCHANT SHIPBUILDING CO. When built 1922.
 Owners AMERICAN-HAWAIIAN S.S. CO. Owners' Address 39 BROADWAY, NEW YORK.
 Yard No. 385 Electric Light Installation fitted by MERCHANT S.B. CORP. When fitted 1922.

DESCRIPTION OF DYNAMO, ENGINE, ETC.

FOUR 65 K.W. VOLT GENERATING SETS DIRECT CONNECTED TO DIESEL OIL ENGINES.
ONE 15 K.W. 125 VOLT GENERATING SET DIRECT CONNECTED TO 4 CYL. 4 CYCLE KEROSENE ENGINE.
TWO 20 K.W. 110 VOLT GENERATING SETS DIRECT CONNECTED TO 220 VOLT D.C. MOTORS.
 Capacity of Dynamos 1181.8 Amperes at 220 Volts, whether continuous or alternating current CONTINUOUS.

Where is Dynamo fixed ENGINE ROOM, PORT SIDE. Whether single or double wire system is used DOUBLE.
 Position of Main Switch Board ENGINE ROOM, FORWARD having switches to 35 GROUPS of lights, etc., as below
 Positions of auxiliary switch boards and numbers of switches on each ONE 10 BRANCH W.T. SHELTER DK. FR. NO. 38, ONE 22 BRANCH W.T. SHELTER DK. FR. NO. 100, ONE 8 BRANCH W.T. SHELTER DK. NO. 157, ONE 6 BRANCH W.T. SHELTER DK. FR. NO. 183, ONE 8 BRANCH W.T. ENGINE ROOM.

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 NO WIRE FUSES.
 Are all switches and fuses constructed of incombustible materials and fitted on incombustible bases YES.

Total number of lights provided for 342 arranged in the following groups:—

A	ONE 18" ARC SEARCH LIGHTS each of 4	750 WATTS.	candle power requiring a total current of	35 Amperes
B	10 lights each of 12	300 "	candle power requiring a total current of	27 "
C	4 lights each of 6	100 "	candle power requiring a total current of	27 Amperes
D	105 lights each of 36	75 "	candle power requiring a total current of	11 "
E	71 lights each of 6	60 "	candle power requiring a total current of	3 Amperes
	TWO Mast head light with TWO lamps each of 60 "		candle power requiring a total current of	3 "
	TWO Side light with TWO lamps each of 60 "		candle power requiring a total current of	48 Amperes
	90 Cargo lights of 60 "		candle power, whether incandescent or arc lights	13 "
				16 Amperes
				1 Amperes
				1 Amperes
				49 "

If arc lights, what protection is provided against fire, sparks, &c. THE ONLY ARC LAMP INSTALLED IS THE SEARCH-LIGHT, THIS IS IN A METALLIC CASE.

Where are the switches controlling the masthead and side lights placed TELL-TALE PANEL IN PILOT HOUSE.

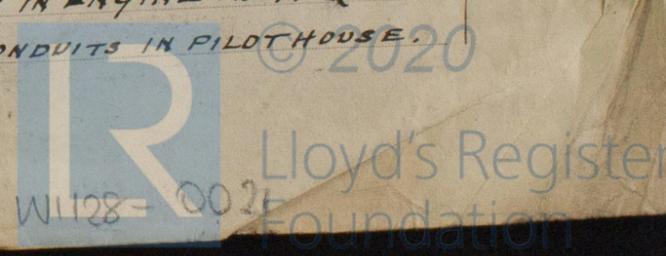
DESCRIPTION OF CABLES.

Main cable carrying 295 Amperes, comprised of 61 wires, each 12 S.W.G. diameter, .5000 square inches total sectional area
 Branch cables carrying 93 Amperes, comprised of 19 wires, each 14 S.W.G. diameter, .0940 square inches total sectional area
 Branch cables carrying 15 Amperes, comprised of 3 wires, each 18 S.W.G. diameter, .0053 square inches total sectional area
 Leads to lamps carrying 6 Amperes, comprised of 1 wires, each 14 S.W.G. diameter, .005128 square inches total sectional area
 Cargo light cables carrying 6 Amperes, comprised of 1 wires, each 14 S.W.G. diameter, .003225 square inches total sectional area

DESCRIPTION OF INSULATION, PROTECTION, ETC.

IN ENGINE ROOM ALL CABLES ARE PROTECTED BY A COVERING OF LEAD & STEEL ARMOUR.
OUTSIDE OF MACHINERY SPACE AND COLD STORAGE ROOMS ALL WIRES ARE TINNED COPPER, RUBBER COVERED, DOUBLE BRAIDED, AND RUN IN GALVANIZED STEEL CONDUITS.
 Joints in cables, how made, insulated, and protected GOOD MECHANICAL JOINTS, THOROUGHLY SOLDERED, INSULATED WITH RUBBER AND FRICTION TAPE, AND PROTECTED IN WATERTIGHT JUNCTION 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 NO.
 How are the cables led through the ship, and how protected LEAD & ARMOURED CABLE IN ENGINE ROOM & TO ELECTRIC DECK AUXILIARIES. GALV. STEEL CONDUITS. BRASS CONDUITS IN PILOT HOUSE.



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 **CONDUIT & LEAD & ARMoured CABLES.**

What special protection has been provided for the cables near galleys or oil lamps or other sources of heat **CONDUIT & LEAD & ARMoured CABLES.**

What special protection has been provided for the cables near boiler casings **NO CABLES INSTALLED NEAR BOILER CASING.**

What special protection has been provided for the cables in engine room **LEADED & ARMoured CABLES & W.T. BOXES.**

How are cables carried through beams **LEAD BUSHINGS** through bulkheads, &c. **CONDUIT & W.T. STUFFING BOXES.**

How are cables carried through decks **CONDUIT & W.T. STUFFING BOXES.**

Are any cables run through coal bunkers **NO.** or cargo spaces **YES.** or spaces which may be used for carrying cargo, stores, or baggage **YES.**

If so, how are they protected **SAL. STEEL CONDUITS & LEAD COVERED ARMoured WIRES & SPECIAL PROTECTION OF STRUCTURAL STEEL WHERE NECESSARY.**

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

If so, how are the lamp fittings and cable terminals specially protected **VAPOUR PROOF GUARDED FIXTURES BETWEEN FRAMES PROTECTED BY HEAVY GUARD BARS.**

Where are the main switches and fuses for these lights fitted **IN DISTRIBUTION PANELS ON DECK.**

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 **FIXED.** How fixed **RIGID CONDUITS.**

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 **ON 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.

MERCHANT S.B. CORP. & THE WM. CRAMP & SONS S. & E.B. CO;
 (Sgd.) **WM. MULHERON** *Gabrice* Electrical Engineers Date **APRIL 4th 1922.**
ASST. CHIEF ENGR. **MAY 3rd "**

COMPASSES.

Distance between dynamo or electric motors and standard compass **200 FT.**

Distance between dynamo or electric motors and steering compass **200 FT.**

The nearest cables to the compasses are as follows:—

A cable carrying $\frac{1}{10}$ Amperes	CONNECTED TO feet from standard compass	4 feet from steering compass
A cable carrying $\frac{75}{100}$ Amperes	4 feet from standard compass	4 feet from steering compass
A cable carrying 3 Amperes	8 feet from standard compass	8 feet from steering compass

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 **2** degrees on **S.E.** course in the case of the standard compass and **1.1.2.** degrees on **N.E.E.S.E.** course in the case of the steering compass.

MERCHANT S.B. CORP.;
 (Sgd.) **WM. MULHERON** Builder's Signature. Date **MAY 3rd 1922.**

GENERAL REMARKS. **ALL POWER AND ENGINE ROOM LIGHTING BY THE WM. CRAMP & SONS S & E.B. CO. THE INSTALLATION IS WELL FITTED AND IN ACCORDANCE WITH THE RULES. ALL AUXILIARIES — EXCEPT SMALL STEAM DRIVEN COMPRESSOR — ARE MOTOR DRIVEN. THE LIGHTING INSTALLATION TOGETHER WITH ALL MOTOR DRIVEN MACHINERY AND STEERING GEAR MOTOR TRIED UNDER FULL WORKING CONDITIONS AND FOUND SATISFACTORY.**

FEE. \$401.25

Committee's Minute

Elect light



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2m. 11.10.—Transfer.