

MON. JUL 31 1922

REPORT ON ELECTRIC LIGHTING INSTALLATION.

No. 4418

Port of PHILADELPHIA. Date of First Survey MAR 6. Date of Last Survey JULY 6. No. of Visits 36.
 No. in on the Iron or Steel T.M.S. "MISSOURIAN" Port belonging to NEW YORK.
 Reg. Book Built at CHESTER, PA. By whom MERCHANT SHIPBUILDING CORP. When built 1922.
 Owners AMERICAN-HAWAIIAN S.S. CO. Owners' Address 39 BROADWAY, NEW YORK.
 Yard No. 386 Electric Light Installation fitted by MERCHANT S.B. CORP. When fitted 1922.

DESCRIPTION OF DYNAMO, ENGINE, ETC.

FOUR 65 K.W. 220 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 ENG.
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, FORD. having switches to groups 35 GROUPS. of lights, &c., 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 N.W.T. SHELTER DK: FR: NO. 100, ONE 8 BRANCH W.T. SHELTER DK: FR: 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 1/8" ARC SEARCH	lights each of	4	"	750 WATTS.	candle power requiring a total current of	35	Amperes
B	10	lights each of	10	"	300	candle power requiring a total current of	27	"
C	4	lights each of	12	"	100	candle power requiring a total current of	27	Amperes
D	6	lights each of	4	"	75	candle power requiring a total current of	11	"
E	105	lights each of	6	"	60	candle power requiring a total current of	3	Amperes
	36	"	105	"	50	candle power requiring a total current of	48	Amperes
	71	lights each of	36	"	40	candle power requiring a total current of	13	"
			71	"	25	candle power requiring a total current of	16	Amperes

TWO Mast head light with TWO lamps each of 60 WATTS. candle power requiring a total current of 1 Amperes

TWO Side light with TWO lamps each of 60 " candle power requiring a total current of 1 Amperes

Cargo lights of 60 " candle power, whether incandescent or arc lights 49 "

If arc lights, what protection is provided against fire, sparks, &c. THE ONLY ARC LIGHT 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 AND 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 ARMOURD CABLES.**

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

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

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

How are cables carried through beams **LEAD BUSHINGS.**

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 **SALV. STEEL CONDUITS & LEAD COVERED ARMOURD 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 **NO.**

Are any switches or fuses fitted in bunkers **NO.**

Cargo light cables, whether portable or permanently fixed **FIXED YES.**

In vessels fitted on the single wire system, how is the dynamo terminal fixed to the hull of vessel **YES.**

How are the returns from the lamps connected to the hull **YES.**

Are all the joints with the hull in accessible positions **YES.**

Is the installation supplied with a voltmeter **YES.** and with an amperemeter **YES.**

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 **YES.**

How are the lamps specially protected in places liable to the accumulation of vapour or gas **YES.**

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. & WM. CRAMP & SONS SKEB CO.

by J. MacLellan, Vice Pres. **Caplan** Electrical Engineers Date **JULY 11 1922.**

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 **10** Amperes **CONNECTED TO** feet from standard compass

A cable carrying **75** Amperes **4** feet from steering compass

A cable carrying **100** Amperes **4** feet from steering compass

A cable carrying **200** Amperes **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 **1** degrees on

standard compass and **1** degrees on course in the case of the steering compass.

MERCHANT S.B. CORP.

by J. MacLellan, Vice Pres. **Builder's Signature** Date **JULY 11 1922.**

GENERAL REMARKS. **FEE \$ 401.25**

ALL POWER & ENGINE ROOM LIGHTING BY THE WM. CRAMP & SONS SKEB CO.

THE INSTALLATION IS WELL FITTED & IN ACCORDANCE WITH THE RULES.

ALL AUXILIARIES—EXCEPT SMALL STEAM DRIVEN COMPRESSORS ARE MOTOR DRIVEN.

THE LIGHTING INSTALLATION TOGETHER WITH ALL MOTOR DRIVEN MACHINERY & STEERING GEAR MOTOR TRIED UNDER FULL WORKING CONDITIONS, AND FOUND SATISFACTORY.

Committee's Minute

Surveyor to Lloyd's Register of Shipping.

Committee's Minute

Assigned

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