

WED. MAR. 28 1923

## REPORT ON ELECTRIC LIGHTING INSTALLATION. No. 4550

Port of *Philadelphia* Date of First Survey *11<sup>th</sup> Oct. 1922* Date of Last Survey *1<sup>st</sup> March 1923* No. of Visits *24*  
 No. in Reg. Book on the ~~Iron~~ Steel *S.S. "PENNSYLVANIA SUN"* Port belonging to *Philadelphia*  
 Built at *Chester Pa* By whom *Sun Shipbuilding Co* When built *1923*  
 Owners *Sun Oil Co, Inc.* Owners' Address *Philadelphia*  
 Yard No. *42* Electric Light Installation fitted by *Sun Shipbuilding Co* When fitted *1923*

## DESCRIPTION OF DYNAMO, ENGINE, ETC.

*Two (2) G. E. Compound wound continuous current Generators direct connected to two (2) G. E. Vertical Engines*

Capacity of Dynamo *174* Amperes at *115* Volts, whether continuous or alternating current *Direct*

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

Position of Main Switch Board *Port side Dynamo Room* having switches to groups *Seven* of lights, &c., as below

Positions of auxiliary switch boards and numbers of switches on each *one six circuit-panel in Dynamo Room; one eight circuit-panel in Engine Room hatch; one six circuit-panel in Bridge Deck House; Junction boxes outside Pump 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 *Yes*

Are all switches and fuses constructed of incombustible materials and fitted on incombustible bases *Yes*

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

arranged in the following groups :-						
A	Bridge House	52	lights each of	32	candle power requiring a total current of	20 Amperes
B	After Quarters	54	lights each of	32	candle power requiring a total current of	20 Amperes
C	Engine Room	62	lights each of	32	candle power requiring a total current of	22 Amperes
D	Deck House	28	lights each of	32	candle power requiring a total current of	15 Amperes
E	Pump Room	16	lights each of	32	candle power requiring a total current of	7 Amperes
1	Mast head light with	2	lamps each of	40	candle power requiring a total current of	1 Amperes
2	Side light with	2	lamps each of	40	candle power requiring a total current of	2 Amperes
6	Cargo lights of	36 - 32			candle power, whether incandescent or arc lights	Incandescent.

If arc lights, what protection is provided against fire, sparks, &c. *None used* *87*

Where are the switches controlling the masthead and side lights placed *On Tell-tale panel in Pilot House*

## DESCRIPTION OF CABLES.

Main cable carrying *142* Amperes, comprised of *2* wires, each *000* S.W.G. diameter, *0.132* square inches total sectional area  
 Branch cables carrying *22* Amperes, comprised of *2* wires, each *30.000* cm S.W.G. diameter, *0.0260* square inches total sectional area  
 Branch cables carrying *20* Amperes, comprised of *2* wires, each *30.000* cm S.W.G. diameter, *0.0260* square inches total sectional area  
 Leads to lamps carrying *4* Amperes, comprised of *2* wires, each *4.000* cm S.W.G. diameter, *0.00323* square inches total sectional area  
 Cargo light cables carrying *2* Amperes, comprised of *2* wires, each *1620* cm S.W.G. diameter, *0.00128* square inches total sectional area

## DESCRIPTION OF INSULATION, PROTECTION, ETC.

*All lead and armored cable used throughout ship: Stuffing tubes used going through bulkheads: Lead bushing used going through beams: Watertight fixtures used*  
 Joints in cables, how made, insulated, and protected *All joints made mechanically tight, then soldered and wrapped with linen and rubber tape*

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 *No*

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 *Shipped to decks and pans made for that purpose*



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 *Lead & armored cable used and water-tight fittings*

What special protection has been provided for the cables near galleys or oil lamps or other sources of heat *Lead & armored cable*

What special protection has been provided for the cables near boiler casings *Lead & armored cable*

What special protection has been provided for the cables in engine room *Lead & armored cable*

How are cables carried through beams *Lead bushings* through bulkheads, &c. *Lead bushing* ✓

How are cables carried through decks *Lead & armored cable in conduit pipes* ✓

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

If so, how are they protected ✓

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

If so, how are the lamp fittings and cable terminals specially protected ✓

Where are the main switches and fuses for these lights fitted ✓

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 *Portable* How fixed *Extension cord*

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 *In 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 *Yes*

Are any switches, fuses, or joints of cables fitted in the pump room or companion *No*

How are the lamps specially protected in places liable to the accumulation of vapour or gas *Vapor proof fixtures*

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.

COMPASSES.

Distance between dynamo or electric motors and standard compass *250 feet.*

Distance between dynamo or electric motors and steering compass *250 feet.*

The nearest cables to the compasses are as follows:—

A cable carrying	Amperes	feet from standard compass	feet from steering compass
<i>1/2</i>	<i>1</i>	<i>1</i>	
<i>1/2</i>	<i>3</i>	<i>6</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 *all* course in the case of the standard compass and *Nil* degrees on *all* course in the case of the steering compass.

GENERAL REMARKS.

*This installation has been well fitted on board and proved satisfactory under full trial*

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

Builder's Signature. Date *8th March, 1923.*

Surveyor to Lloyd's Register of Shipping.

Committee's Minute

*Elect. light*



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