

# REPORT ON ELECTRIC LIGHTING INSTALLATION. No. 20474

Port of *New York* Date of First Survey *Jan 6/21* Date of Last Survey *Jan 6/21* No. of Visits *10*  
 No. in on the *Steel* *Screw Steamer E. T. BEDFORD* Port belonging to *New Jersey*  
 Reg. Book Built at *Kearny, New Jersey* By whom *Federal Ship Building Co* When built *1921*  
 Owners *Standard Oil Co of New Jersey* Owners' Address *26 Broadway, New York*  
 Yard No. *48* Electric Light Installation fitted by *Federal Ship Building Co* When fitted *1921*

DESCRIPTION OF DYNAMOS, ENGINES, ETC. *2-20 K. W. - 110/25 Volts, multipolar, flat compound wound generators, each direct connected to vertical steam reciprocating engine having automatic cut off & forced lubrication*  
*1-10 K. W. 115 Volt, multipolar flat compound wound generator, direct connected to 4 cycle, 4 cylinder gasoline engine*

Capacity of Dynamos *182 Main 91 aux* Amperes at *110* Volts, whether continuous or alternating current *Continuous*

Where is *MAIN* Dynamo fixed *Dynamo flat in engine room* Whether single or double wire system is used *Double*

Position of Main Switch Board *On Dynamo flat* having switches to groups *5 A.B.C.D.E. of lights, &c., as below*

Positions of auxiliary switch boards and numbers of switches on each *1-Aux Switchboard located in Emer Generator Room in fore-castle, 3 lighting distribution panels, 2 having 12 switches each & 1 with 14 switches, 1 Main distribution panel having 8 switches located on Saloon deck.*

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 *50* 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 *370* arranged in the following groups:—

			WATTS.		
A	<i>134</i>	lights each of <i>50</i>	candle power requiring a total current of <i>61</i>	Amperes	
B	<i>42</i>	lights each of <i>50</i>	candle power requiring a total current of <i>19.2</i>	Amperes	
C	<i>12</i>	lights each of <i>50</i>	candle power requiring a total current of <i>5.5</i>	Amperes	
	<i>22</i>	lights each of <i>50</i>	candle power requiring a total current of <i>10.0</i>	Amperes	
D	<i>13</i>	lights each of <i>50</i>	candle power requiring a total current of <i>5.9</i>	Amperes	
	<i>48</i>	lights each of <i>50</i>	candle power requiring a total current of <i>21.8</i>	Amperes	
E	<i>99</i>	lights each of <i>50</i>	candle power requiring a total current of <i>40.45</i>	Amperes	
<i>2</i>	Mast head lights with <i>2</i>	lamps each of <i>32</i>	candle power requiring a total current of <i>4</i>	Amperes	
<i>2</i>	Side lights with <i>2</i>	lamps each of <i>32</i>	candle power requiring a total current of <i>4</i>	Amperes	
<i>3</i>	Cargo lights of <i>500</i>	candle power, whether incandescent or are lights <i>Incandescent.</i>			

If arc lights, what protection is provided against fire, sparks, &c. *No arc lights*

Where are the switches controlling the masthead and side lights placed *On tell-tale panel in pilot house.*

## DESCRIPTION OF CABLES.

2 Main cables carrying <i>175</i> Amperes, comprised of <i>2</i> wires, each <i>#4</i> A.W.G. diameter, <i>211.600</i> square inches total sectional area	<i>Air Mills</i>
Branch cables carrying <i>61.00</i> Amperes, comprised of <i>2</i> wires, each <i>#2</i> A.W.G. diameter, <i>133.100</i> square inches total sectional area	
Branch cables carrying <i>40.45</i> Amperes, comprised of <i>2</i> wires, each <i>#4</i> A.W.G. diameter, <i>300.000</i> square inches total sectional area	
Branch cables carrying <i>19.2</i> Amperes, comprised of <i>2</i> wires, each <i>#4</i> A.W.G. diameter, <i>41.740</i> square inches total sectional area	
Leads to lamps carrying <i>1/2</i> Amperes, comprised of <i>2</i> wires, each <i>#14</i> A.W.G. diameter, <i>4.107</i> square inches total sectional area	
Cargo light cables carrying <i>4.55</i> Amperes, comprised of <i>2</i> wires, each <i>#14</i> A.W.G. diameter, <i>4.107</i> square inches total sectional area	

## DESCRIPTION OF INSULATION, PROTECTION, ETC.

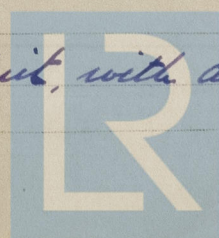
*Rubber covered, double braided wires pulled in rigid galvanised iron conduit*

Joints in cables, how made, insulated, and protected *Soldered joints, covered with rubber insulation and friction tape. Joints made with a non-corrosive flux*

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 *Through rigid iron conduit, with additional protection where required.*



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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 is made watertight.

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

Conduit, Asbestos covered wire.

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

Asbestos covered wire.

What special protection has been provided for the cables in engine room

In iron conduit.

How are cables carried through beams

In conduit

through bulkheads, & In conduit, made watertight

How are cables carried through decks

In conduit made W.T. with locknuts & washers & canvas.

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

By conduit.

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

With wire guards.

Where are the main switches and fuses for these lights fitted

In tween deck passage.

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

Plug Boxes.

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 Main 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 globes with wire guards.

Amend Institution of Electrical Engineers

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 500 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.

J. H. Osborne

Electrical Engineers

Date June 7, 1921

COMPASSES.

Distance between dynamo or electric motors and standard compass

330 ft aft or 100 ft forward.

Distance between dynamo or electric motors and steering compass

60 ft

The nearest cables to the compasses are as follows:—

A cable carrying  $\frac{1}{2}$  Amperes 5 feet from standard compass 8 feet from steering compass

A cable carrying Amperes 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 at work at full power

Not yet adjusted

The maximum deviation due to electric currents, etc., was found to be

degrees on

course in the case of the

standard compass and

degrees on

course in the case of the steering compass.

The Pedal Shipbuilding Co., W. W. Smith, Ch. Eng. Builder's Signature. Date June 7, 1921.

GENERAL REMARKS.

The above installation has been fitted on board the Vessel in a satisfactory manner. The material & workmanship, so far as can be seen, are sound & good & proved satisfactory under test.

Special Survey Fee. = \$275.00

J. Hockhart.

Surveyor to Lloyd's Register of Shipping.

Committee's Minute New York JUN 28 1921

Elect light



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