

# REPORT ON ELECTRIC LIGHTING INSTALLATION. No. 5356

Port of Bilbao Date of First Survey \_\_\_\_\_ Date of Last Survey \_\_\_\_\_ No. of Visits \_\_\_\_\_  
 No. in on the ~~Iron~~ Steel SS. CONDE. de ZUBIRIA Part belonging to Bilbao  
 Reg. Book \_\_\_\_\_ By whom La Sociedad Española de Construcción Naval When built 1919  
 Built at Bilbao Owners' Address Bilbao  
 Owners Altos Hornos de Vizcaya When fitted 1919  
 Card No. 2 Electric Light Installation fitted by La Sociedad Española de Construcción Naval

## DESCRIPTION OF DYNAMO, ENGINE, ETC.

One 6 1/2 x 6" Vertical H.P. steam engine direct coupled to a compound wound direct current dynamo

Capacity of Dynamo 40 Amperes at 100 Volts, whether continuous or alternating current Continuous

Where is Dynamo fixed in Engine Room Whether single or double wire system is used double

Position of Main Switch Board near dynamo having switches to groups A.B.C.D.E of lights, &c., as below

Positions of auxiliary switch boards and numbers of switches on each Each circuit has a section box placed in a suitable position in that section of the ship which it feeds. A switch is fitted to each light or each group of lights

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-oxidisable 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 Yes

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

Total number of lights provided for 110 arranged in the following groups:—

A	16	lights each of	16	candle power requiring a total current of	8.8	Amperes
B	30	lights each of	16	candle power requiring a total current of	7.4	Amperes
C	32	lights each of	16	candle power requiring a total current of	14.6	Amperes
D	13	lights each of	16	candle power requiring a total current of	3.25	Amperes
E	Turbine turning motor		lights each of 4 1/2 H.P.	<del>candle power</del> requiring a total current of	36	Amperes
2	Mast head light with	1	lamps each of 32	candle power requiring a total current of	1.2	Amperes
2	Side light with	1	lamps each of 32	candle power requiring a total current of	1.2	Amperes
3	Cargo lights of 5-16 C.P. LAMPS.			candle power, whether incandescent or arc lights	incandescent	

If arc lights, what protection is provided against fire, sparks, &c. No arc lights fitted 43.3

Where are the switches controlling the masthead and side lights placed in wheelhouse

## DESCRIPTION OF CABLES.

Main cable carrying	14.6	Amperes, comprised of	7	wires, each	14	S.W.G. diameter, .0348	square inches total sectional area
Branch cables carrying	5.5	Amperes, comprised of	7	wires, each	14	S.W.G. diameter, .01406	square inches total sectional area
Branch cables carrying	8.7	Amperes, comprised of	7	wires, each	20	S.W.G. diameter, .00705	square inches total sectional area
Leads to lamps carrying	.6	Amperes, comprised of	1	wires, each	18	S.W.G. diameter, .00181	square inches total sectional area
Cargo light cables carrying	3	Amperes, comprised of	62	wires, each	38	S.W.G. diameter, .00146	square inches total sectional area

## DESCRIPTION OF INSULATION, PROTECTION, ETC.

Vulcanized india rubber taped & lead covered & steel armoured where necessary

Joints in cables, how made, insulated, and protected None except mechanical ones

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 Cables are lead covered in pipe lead alongside hatches & firmly secured by strong W.I. clips



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 covered cables in pipes*

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

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

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

How are cables carried through beams *through lead bushes* through bulkheads, &c. *lead bushes or glands*

How are cables carried through decks *through W.I. deck tubes*

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 *no*

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 *✓*

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 & engine room*

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.

Electrical Engineers Date

COMPASSES.

Distance between dynamo or electric motors and standard compass *56 Meters*

Distance between dynamo or electric motors and steering compass *53 Meters*

The nearest cables to the compasses are as follows:—

A cable carrying	Amperes	feet from standard compass	feet from steering compass
<i>.6</i>	<i>1.5</i>	<i>9</i>	
<i>.6</i>	<i>9</i>	<i>2</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 *Nil* course in the case of the standard compass and *Nil* degrees on *Nil* course in the case of the steering compass.

SOCIEDAD ESPAÑOLA DE CONSTRUCCION MARITIMA

Builder's Signature. Date *24 April 1919*

GENERAL REMARKS.

*The electrical installation has been carefully fitted on board & tested with satisfactory results.*

*This vessel is in my opinion eligible for the Record of Electric Light being inscribed in the Register Book.*

*Yes 300 ps. this vessel is eligible for.* *THE RECORD. Elec. light.* *1/6/19.* *Surveyor to Lloyd's Register of Shipping.*

Committee's Minute *TUE 17 JUN 1919* *TUE 27 MAY 1920*

THE SURVEYORS ARE REQUESTED NOT TO WRITE ACROSS THIS MARGIN.



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