

TUE. 18 NOV. 1919

## REPORT ON ELECTRIC LIGHTING INSTALLATION. No. 10517

Port of MIDDLESBRO Date of First Survey ✓ Date of Last Survey while No. of Visits Building  
 No. in Reg. Book on the Steel S.S. Gandara Port belonging to ✓  
 Built at Stockton By whom Messrs Craig Taylor & Co When built 1919  
 Owners' Address ✓  
 Yard No. 219 Electric Light Installation fitted by Messrs Falconar Cross & Co When fitted 1919  
Newcastle

## DESCRIPTION OF DYNAMO, ENGINE, ETC. N° 1. 6 1/2 x 6".

2. 4 x 5. Open type vertical engines direct coupled to

compound wound multipolar dynamos running at 360 R.P.M. with 100 lbs steam.

Capacity of Dynamo N° 1. 100. ✓ N° 2. 45. ✓ Amperes at N° 1. 100. N° 2. 100. Volts, whether continuous or alternating current continuous ✓.Where is Dynamo fixed In engine room. Whether single or double wire system is used double wire ✓.Position of Main Switch Board In engine room. having switches to groups A. B. C. D & E. of lights, &c., as belowPositions of auxiliary switch boards and numbers of fuses on each 3-way section Boxes:- Steer: Gear 2. Saloon Pass:1. 10-way D-B:- Saloon Pass: 1. 8-way D-B:- Chart Room 1, Eng. Room 1, Accom. aft 1.4-way D-B:- Bridge Accom: 1. 3-way D-B:- Midship Accom: 1, Saloon Pass: 1, Forecastle 1.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 yesIf 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 yesAre the fuses of non-oxidizable metal yes and constructed to fuse at an excess of 100 per cent over the normal currentAre 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 yesAre all switches and fuses constructed of incombustible materials and fitted on incombustible bases yes.Total number of lights provided for 154 arranged in the following groups:—

A Cargo.	30 lights each of	16.	candle power requiring a total current of	15.	Amperes
B Saloon & Forward.	42 lights each of	16.	candle power requiring a total current of	21.	Amperes
C Navigation.	4 lights each of	32.	candle power requiring a total current of	10.	Amperes
D Eng. Room & aft.	62 lights each of	16.	candle power requiring a total current of	31.	Amperes
E Wireless.	— lights each of	—	candle power requiring a total current of	15.	Amperes
2 Mast head light with	2 lamps each of	32.	candle power requiring a total current of	2.	Amperes
2 Side light with	2 lamps each of	32.	candle power requiring a total current of	2.	Amperes
5 Cargo lights of	6-16.		candle power, whether incandescent or arc lights	<u>96</u>	<u>incandescent</u>

If arc lights, what protection is provided against fire, sparks, &amp;c.

Where are the switches controlling the masthead and side lights placed In chart room.

## DESCRIPTION OF CABLES.

Main cable carrying	93 Amperes, comprised of	19 wires, each	14 S.W.G. diameter,	0.094 square inches total sectional area
Branch cables carrying	32 Amperes, comprised of	4 wires, each	16 S.W.G. diameter,	0.022 square inches total sectional area
Branch cables carrying	15 Amperes, comprised of	4 wires, each	18 S.W.G. diameter,	0.0125 square inches total sectional area
Leads to lamps carrying	5 Amperes, comprised of	1 wires, each	18 S.W.G. diameter,	0.0018 square inches total sectional area
Cargo light cables carrying	3 Amperes, comprised of	114 wires, each	38 S.W.G. diameter,	0.0032 square inches total sectional area

## DESCRIPTION OF INSULATION, PROTECTION, ETC.

Lead covered and armoured & braided cables. Linned copper  
conductors insulated with pure para rubber, vulcanised india rubber,  
taped and braided.

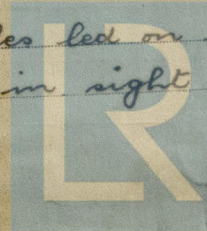
Joints in cables, how made, insulated, and protected

No joints made.

Are all the joints of cables thoroughly soldered, and the flux used not containing acids or other corrosive substances — 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 —

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 Steel armoured cables led on underside of  
decks, through beams and on bulkheads. all in sight.



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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 (1) Steel armoured cables. (2) Carried in S. I. pipes.

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

What special protection has been provided for the cables near boiler casings steel armoured and braided.

What special protection has been provided for the cables in engine room steel armoured and braided.

How are cables carried through beams Bushed holes through bulkheads, &c. Watertight glands.

How are cables carried through decks Watertight deek tubes.

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 steel armoured cables led between beams.

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.

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.

Falconer, Cross & Co

Electrical Engineers

Date 6. 11. 19.

COMPASSES.

Distance between dynamo or electric motors and standard compass 92 ft.

Distance between dynamo or electric motors and steering compass 84 "

The nearest cables to the compasses are as follows:—

A cable carrying	Amperes	feet from standard compass	feet from steering compass
<u>8.5</u>	<u>12</u>	<u>9</u>	<u>9</u>
<u>5</u>	<u>3</u>	<u>3</u>	<u>3</u>
<u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>

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 no degrees on any course in the case of the standard compass and no degrees on any course in the case of the steering compass.

For CRAIG, TAYLOR & CO. LIMITED,

H. Taylor

DIRECTOR

Builder's Signature.

Date 12<sup>th</sup> Nov 1919

GENERAL REMARKS.

This installation has been fitted in accordance with the Rules. The material and workmanship are good and on completion the installation was examined under full working conditions and found satisfactory.

It is submitted that this vessel is eligible for

THE RECORD. Elec. light.

AWD 18/11/19.

Wm Morrison

Surveyor to Lloyd's Register of Shipping.

Committee's Minute

THE SURVEYORS ARE REQUESTED NOT TO WRITE ACROSS THIS MARGIN.



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