

# REPORT ON ELECTRIC LIGHTING INSTALLATION. No. 686

Name of Ship Tenacocha B.C. Date of First Survey 18 Sept 1918 Date of Last Survey 11<sup>th</sup> Nov No. of Visits 9  
 on the Iron or Steel W. H. P. Thompson War Casco Port belonging to Tenacocha B.C.  
 Built at Tenacocha B.C. By whom Nestor Cesar Pizarro When built 1918  
Hande & Co Owners' Address Glasgow.  
 No. A. Electric Light Installation fitted by W. W. Fraser When fitted 1918

## DESCRIPTION OF DYNAMO, ENGINE, ETC.

15 H.P. De Laval Steam Turbo  
(Generator by General Electric Co Ltd)  
 Capacity of Dynamo 90 Amperes at 110 Volts, whether continuous or alternating current Continuous  
 Where is Dynamo fixed Engine room (lower platform) Whether single or double wire system is used Double  
 Position of Main Switch Board Engine room near dynamo having switches to groups (6) Six in all of lights, &c., as below  
 Positions of auxiliary switch boards and numbers of switches on each Navigations - Officers in Bridge Quarters 12 Sw.  
Castle 3 switches, Bargo deck at Midships Quarters 8 switches, Midships circuit 7 Sw.  
Engine room circuit 8 switches, wireless 1 switch in Captain's room & wireless Room  
 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  
 Where is vessel 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 25 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 there permanent instructions fitted on or near each switch board giving particulars of proper size of fuse for each circuit  
 Are all switches and fuses constructed of incombustible materials and fitted on incombustible bases

## 337. Total number of lights provided for 210 arranged in the following groups:—

<u>Forty</u>	lights each of <u>16</u>	candle power requiring a total current of <u>19.2</u>	Amperes
<u>Thirty</u>	lights each of <u>16</u>	candle power requiring a total current of <u>14.4</u>	Amperes
<u>Thirty-Two</u>	lights each of <u>16</u>	candle power requiring a total current of <u>15.4</u>	Amperes
<u>Sixty-Two</u>	lights each of <u>16</u>	candle power requiring a total current of <u>29.8</u>	Amperes
<u>Sixteen</u>	lights each of <u>16</u>	candle power requiring a total current of <u>7.7</u>	Amperes
<u>One</u>	Mast head light with <u>One</u> lamps each of <u>16</u>	candle power requiring a total current of <u>48</u>	Amperes
<u>Two</u>	Side light with <u>One</u> lamps each of <u>16</u>	candle power requiring a total current of <u>96</u>	Amperes
	Cargo lights of	candle power, whether incandescent or are lights <u>Incandescent</u>	

Are there any other lights, what protection is provided against fire, sparks, &c. None

Where are the switches controlling the masthead and side lights placed In wheel-house.

## DESCRIPTION OF CABLES.

One cable carrying <u>90</u>	Amperes, comprised of <u>37</u> wires, each <u>15</u>	S.W.G. diameter, <u>14.89</u> square inches total sectional area
Two cables carrying <u>20</u>	Amperes, comprised of <u>7</u> wires, each <u>16</u>	S.W.G. diameter, <u>22.27</u> square inches total sectional area
Two cables carrying <u>10</u>	Amperes, comprised of <u>4</u> wires, each <u>18</u>	S.W.G. diameter, <u>21.52</u> square inches total sectional area
Two cables to lamps carrying <u>3</u>	Amperes, comprised of <u>1</u> wires, each <u>17</u>	S.W.G. diameter, <u>00.946</u> square inches total sectional area
Two cable light cables carrying <u>15</u>	Amperes, comprised of <u>7</u> wires, each <u>18</u>	S.W.G. diameter, <u>0.27</u> square inches total sectional area

## DESCRIPTION OF INSULATION, PROTECTION, ETC.

30% Pure Para Rubber tape and braiding with water-proof compound.

How are the cables, how made, insulated, and protected Spliced, soldered, taped, with pure rubber and friction 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 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 In water-tight galvanised iron conduit except in living quarters which are all in wood moulding.



**DESCRIPTION OF INSULATION, PROTECTION, ETC.—continued.**

Are they in places always accessible *Yes except in cargo space where holds are full of cargo*

What special protection has been provided for the cables in open alleyways or where exposed to weather or moisture *all wires in such places are in galvanised iron conduit*

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

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

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

How are cables carried through beams *Iron conduit* through bulkheads, &c. *Water-tight glands*

How are cables carried through decks *Water-tight glands*

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 *In iron conduit no wires terminate in cargo spaces*

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 *From water-tight fitting on*

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

How are the returns from the lamps connected to the hull *None*

Are all the joints with the hull in accessible positions *None*

Is the installation supplied with a voltmeter *Yes* and with an amperemeter *Yes*, fixed *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 *2.500* 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 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 that it is at this date in good order and safe working condition.

*W.W. Fraser* Electrical Engineers Date *20th Nov*

**COMPASSES.**

Distance between dynamo or electric motors and standard compass *150 Feet +*

Distance between dynamo or electric motors and steering compass *150 Feet +*

The nearest cables to the compasses are as follows:—

A cable carrying	<i>20</i>	Amperes	<i>20</i>	feet from standard compass	<i>25</i>	feet from steering compass
A cable carrying	<i>15</i>	Amperes	<i>12</i>	feet from standard compass	<i>17</i>	feet from steering compass
A cable carrying	<i>0.4</i>	Amperes	<i>fitted in compass</i>	feet from standard compass	<i>fitted in compass</i>	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 *Nothing* degrees on *—* course in the case of the standard compass and *—* degrees on *—* course in the case of the steering compass.

*W.W. Fraser (Elec Eng)* Builder's Signature. Date *20th Nov*

**GENERAL REMARKS.**

*The Electric Light Installation is of Good Quality and Workmanship. Tested under Working Conditions and found satisfactory. Eligible in my opinion to be noted in the Register Book. Electric Light 11-18*

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

*James Murdoch. + Austin*  
Surveyor to Lloyd's Register of Shipping.

5c, 118—Transfer.