

# REPORT ON ELECTRIC LIGHTING INSTALLATION. No. 33135

Port of Hull Date of First Survey 16/9/21 Date of Last Survey 3/2/22 No. of Visits 30  
 No. in on the Iron or Steel S.S. City of Durban Port belonging to  
 Reg. Book Built at Hull By whom Earles Shipbldg & Eng. Co. Ltd. When built 1922.  
 Owners P. & O. Steam Navigation Co. Ltd. Owners' Address  
 Yard No. 627 Electric Light Installation fitted by Earles Shipbldg & Eng. Co. Ltd. When fitted 1920.

## DESCRIPTION OF DYNAMO, ENGINE, ETC.

Dynamo: - Nessle Clarke Chapman & Co. Ltd. Type 55. Mehe No. 5969. Six pole.  
 Engine: - 7" x 6" Stroke 100 lbs.  
 Capacity of Dynamo 120 Amperes at 100 Volts, whether continuous or alternating current D. C.  
 Where is Dynamo fixed Std. Side of Thrust Recess. Whether single or double wire system is used Double Wire  
 Position of Main Switch Board Immediately fwd of dynamo having switches to groups Seven, in number. of lights, &c., as below  
 Positions of auxiliary switch boards and numbers of switches on each

If fuses are fitted on main switch board to the cables of main circuit No 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 Yes.  
 Are all switches and fuses constructed of incombustible materials and fitted on incombustible bases Yes.

Total number of lights provided for 149 arranged in the following groups: -

A Navigation	13 lights each of 32 cp. & 8 candle power requiring a total current of	7.	Amperes
B Accommodation	58 lights each of 30 Watts (24 candle power) requiring a total current of	18.	Amperes
C Crew	38 lights each of 30 Watts (24 candle power) requiring a total current of	12	Amperes
D Engine Room	32 lights each of 200 cp. 18-30 Watt, 7-16 candle power requiring a total current of	17.	Amperes
E Rigging Lights	2 lights each of 2000 candle power requiring a total current of	20.	Amperes
	2 Mast head light with one lamp each of Double Flam <sup>t</sup> , 32 candle power requiring a total current of	2	Amperes
	2 Side light with one lamp each of " " " candle power requiring a total current of	2	Amperes
	8 Cargo lights of 200 cp. 3-16 candle power, whether incandescent or arc lights <u>Incandescent.</u>		

If arc lights, what protection is provided against fire, sparks, &c. Gas filled Incandescent Lights.  
 Circuit for Wireless Telegraphy provided. One 1/2 HP Motor in Engine Room.  
 Where are the switches controlling the masthead and side lights placed On Lower Navigating Bridge.

## DESCRIPTION OF CABLES.

Main cable carrying	90 Amperes, comprised of 19 wires, each .083" S.W.G. diameter, .100 square inches total sectional area
Branch cables carrying	18 Amperes, comprised of 7 wires, each .036" S.W.G. diameter, .007 square inches total sectional area
Branch cables carrying	10 Amperes, comprised of 1 wires, each .064" S.W.G. diameter, .003 square inches total sectional area
Leads to lamps carrying	2 Amperes, comprised of 3 wires, each .029" S.W.G. diameter, .002 square inches total sectional area
Cargo light cables carrying	1.5 Amperes, comprised of 1 wires, each .044" S.W.G. diameter, .0015 square inches total sectional area

## DESCRIPTION OF INSULATION, PROTECTION, ETC.

Pure & Vulcanized India rubber Insulation over tinned Copper Conductors, covered with layer of Insulating Tape & the whole Vulcanized. Covered with uniform sheath of pure lead, Radial thickness as specified to Lloyd's Requirements, also where necessary covered with armour to requirements as above.  
 Joints in cables, how made, insulated, and protected

There are no joints in cables.

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 Armoured Cables thro' beams along deckhead

**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 Covering.

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

What special protection has been provided for the cables near boiler casings Lead Covering & Armouring.

What special protection has been provided for the cables in engine room Lead Covering & Armouring.

How are cables carried through beams Armoured thro' holes, L.C. thro' bushed <sup>holes</sup> through bulkheads, &c. thro' W. T. Bds - glands.

How are cables carried through decks thro' deck pipes 1 1/2" in diam? & 6" <sup>else</sup> where  - pipe ends <sup>between</sup> filled.

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 Lead Covered & armoured & placed so as to be protected from damage.

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 Cast Iron protecting covers.

Where are the main switches and fuses for these lights fitted Outside of Cargo Space - in Storekeepers Room.

If in the spaces, how are they specially protected No.

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 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         

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.

H. Patterson Electrical Engineers Date 30. 12. 1921.

**COMPASSES.**

Distance between dynamo or electric motors and standard compass Approx. 136'

Distance between dynamo or electric motors and steering compass Approx. 142'.

The nearest cables to the compasses are as follows:—

A cable carrying	0.10	Amperes	within	feet from standard compass	8.	feet from steering compass
A cable carrying	0.10	Amperes	8	feet from standard compass	within	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         

The maximum deviation due to electric currents, etc., was found to be Nil degrees on each course in the case of the standard compass and Nileor 4 degs on each course in the case of the steering compass.

C. H. Steward Builder's Signature. Date         

**GENERAL REMARKS.**

The materials and workmanship are good. On completion the installation was tried under full load with satisfactory results.

FEE £12-0-0 applied for 4/1/22

THE RECORD. Elec. Light. L.Y. 9/1/22.

Charlotte Surveyor to Lloyd's Register of Shipping.

Committee's Minute TUE 10 JAN 1922 Elec Lt.



THE SURVEYORS ARE REQUESTED NOT TO WRITE ACROSS THIS MARGIN.