

REPORT ON ELECTRIC LIGHTING INSTALLATION. No. 4606

Port of Belfast Date of First Survey 11th Mar Date of Last Survey 30th April No. of Visits 6
 No. in Reg. Book on the Iron or Steel Twin screw steamer "Gran" Port belonging to Liverpool
 Built at Belfast By whom Messrs Hasland & Welford When built 1896
 Owners Gran Steam Ship Co Ltd Owners Address 3 New Quay Liverpool
 Yard No. 294 Electric Light Installation fitted by Messrs W. H. Allen, Sondt. Bedford When fitted 1896

DESCRIPTION OF DYNAMO, ENGINE, ETC.

2 of W. H. Allen, Sondt. Compound plants of compound dynamo's on vertical double acting engines.

Capacity of Dynamo 90 Amperes at 62 Volts, whether continuous or alternating current Continuous

Where is Dynamo fixed below main engine thrusts.

Position of Main Switch Board below main thrusts on talkhead 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 1 switch placed in chartroom for projector & overhead arc lamps for Suez Canal purposes.

If cut outs are fitted on main switch board to the cables of main circuit yes and on each auxiliary switch boards 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 cessel is wired on the double wire system are cut outs fitted to both flow and return wires or cables of all circuits including lamp circuits —

Are the cut outs of non-oxidizable metal pure tin and constructed to fuse at an excess of 50 per cent over the normal current

Are all cut outs fitted in easily accessible positions yes Are the fuses of standard dimensions — 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 cut-outs constructed of incombustible materials and fitted on incombustible bases yes.

Total number of lights provided for 134 arranged in the following groups:—

Group	Number of lights	Candle power	Current (Amperes)
A	<u>35</u>	lights each of <u>32</u>	<u>38</u>
B	<u>16</u>	lights each of <u>16</u>	<u>16</u>
C	<u>48</u>	lights each of <u>16</u>	<u>48</u>
D	<u>35</u>	lights each of <u>16</u>	<u>35</u>
E	<u>Projector</u>	lights each of <u>—</u>	<u>—</u>
1.	<u>Mast head light with 1 lamps each of 32</u>	<u>32</u>	<u>2</u>
2.	<u>Side light with 2 lamps each of 32</u>	<u>32</u>	<u>4</u>
6	<u>Cargo lights of 128</u>	<u>128</u>	<u>Incandescent</u>

If arc lights, what protection is provided against fire, sparks, &c. are protected by large glass shade.

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

DESCRIPTION OF CABLES.

Main cable carrying 90 Amperes, comprised of 37 wires, each 16 L.S.G. diameter, .119 square inches total sectional area
 Branch cables carrying 16 Amperes, comprised of 7 wires, each 16 L.S.G. diameter, .022 square inches total sectional area
 Branch cables carrying 38 Amperes, comprised of 19 wires, each 18 L.S.G. diameter, .034 square inches total sectional area
 Leads to lamps carrying 1 Amperes, comprised of 1 wires, each 16 L.S.G. diameter, .003 square inches total sectional area
 Cargo light cables carrying 8 Amperes, comprised of 125 wires, each 38 L.S.G. diameter, — square inches total sectional area

DESCRIPTION OF INSULATION, PROTECTION, ETC.

All cables of best quality insulated with pure rubber vulcanizing rubber india rubber proofed tape. The whole vulcanized together being finally braided and compounded.

Joints in cables, how made, insulated, and protected Joints twisted as the case requires and soldered. being reinsulated with pure rubber felt tape oysterite tape and finally painted with insulating varnish.

Are all the joints of cables thoroughly soldered, resin only having been used as a flux 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 joints on upper deck. none in hoppers or bunkers.

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 led along main deck in casing and protected with channel-iron



DESCRIPTION OF INSULATION, PROTECTION, ETC.—continued.

Are they in places always accessible *yes. excepting mains running on main deck. This deck is filled with cargo.*

What special protection has been provided for the cables in open alleyways or where exposed to weather or moisture *cables run in strong casing, and passed through insulated holes in beams.*

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

What special protection has been provided for the cables near boiler casings *lead sheathed and armoured cables.*

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

How are cables carried through beams *holes bored with fibre formers through bulkheads, &c. bulkhead glands.*

How are cables carried through decks *strong galvanized iron deck. pipes made watertight*

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 *strong wood casing screwed to deck, protected with channel iron and beams.*

Are any lamps fitted in coal bunkers or spaces which may at times be used for cargo, coals, or baggage *on main deck under.*

If so, how are the lamp fittings and cable terminals specially protected *_____*

Where are the main switches and cut outs for these lights fitted *_____*

If in the spaces, how are they specially protected *_____*

Are any switches or cut outs fitted in bunkers *_____*

Cargo light cables, whether portable or permanently fixed *portable* How fixed *watertight coupler.*

In vessels fitted on the single wire system, how is the dynamo terminal fixed to the hull of vessel *bolted to fixed magnets and to deck through holding down bolts.*

How are the returns from the lamps connected to the hull *3/8" brass screws. wires soldered to ends.*

Are all the joints with the hull in accessible positions *yes.*

VESSELS BUILT FOR CARRYING PETROLEUM.

In vessels built for carrying petroleum, are all switches and cut-outs fitted in positions not liable to the accumulation of petroleum vapour or gas *_____*

Are any switches, cut outs, 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 installation is *_____* supplied with a voltmeter and *_____* an amperemeter, fixed *_____*

Forehead voltmeter fixed to main switchboard

The copper used is guaranteed to have a conductivity of *100%* per cent. that of pure copper.

Insulation of cables is guaranteed to have a resistance of not less than *2000* megohms per statute mile after 24 hours' immersion in seawater.

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.

For **W. H. ALLEN, SON & Comp^y** Electrical Engineers Date *May 7th 96*
C. C. Hawkins.

COMPASSES.

Distance between dynamo or electric motors and standard compass *104 feet.*

Distance between dynamo or electric motors and steering compass *110 feet.*

The nearest cables to the compasses are as follows:—

A cable carrying	<i>1</i>	Amperes	<i>6</i>	feet from standard compass	<i>1</i>	feet from steering compass
A cable carrying	<i>6</i>	Amperes	<i>9</i>	feet from standard compass	<i>5</i>	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 *yes.*

The maximum deviation due to electric currents, etc., was found to be *nil* degrees on *North* course in the case of the standard compass and *nil* degrees on *all* course in the case of the steering compass. *no deflection on either compass on all courses.*

Builder's Signature *A. L. Jones* Date *_____*

GENERAL REMARKS.

Committee's Minute

THE SURVEYORS ARE REQUESTED NOT TO WRITE ACROSS THIS MARGIN.

REPORT FORM No. 13.



20th July 1911

9.6.96