

# REPORT ON ELECTRIC LIGHTING INSTALLATION. No. 27969

Port of Hull Date of First Survey 15.8.14 Date of Last Survey 19.9.14 No. of Visits 16  
 No. in on the ~~Iron~~ Steel screw steamer Tumatra Port belonging to Gothenborg  
 Reg. Book Lupt 43 Built at Hull By whom Charles E. L. When built 1914.9  
 Owners Aktieb. Lvenska Ostasiatiska Komp. Owners' Address Gothenborg  
 Yard No. 607 Electric Light Installation fitted by J. H. Holmes 160 When fitted 1914.9

## DESCRIPTION OF DYNAMO, ENGINE, ETC.

High pressure inverted engine, open type, coupled direct to multiple compound wound dynamo.

Capacity of Dynamo 150 Amperes at 100 Volts, whether continuous or alternating current continuous

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

Position of Main Switch Board " " near dynamo having switches to groups six of lights, &c., as below

Positions of auxiliary switch boards and numbers of switches on each Two in engine room, one in Office, one in Saloon Pantry, one in Chart Room, one in Mess room, one in Engineers Pantry, one in Wheel House & one in Firemen's Quarters with switches as required.

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 ✓ 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 179 arranged in the following groups :-

A Engine Room	36 lights each of	16	candle power requiring a total current of	20.16	Amperes
B Engineers	23 lights each of	16	candle power requiring a total current of	12.88	Amperes
C Saloon & Navigation	37 lights each of	32 } 16 }	candle power requiring a total current of	21.84	Amperes
D Aft	24 lights each of	32 } 16 }	candle power requiring a total current of	14.56	Amperes
E Cargo 2 mains	60 lights each of	32	candle power requiring a total current of	67.2	Amperes
Two Mast head light with	1 lamps each of	32	candle power requiring a total current of	included in	Amperes
Two Side light with	1 lamps each of	32	candle power requiring a total current of	navigation	Amperes
15 cluster	Cargo lights of	4-32	candle power, whether incandescent or arc lights	incandescent	

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

Where are the switches controlling the masthead and side lights placed Chart room

## DESCRIPTION OF CABLES.

Main cable carrying	136.64 Amperes, comprised of	37 wires, each	14 S.W.G. diameter,	.182 square inches total sectional area
Branch cables carrying	22.0 Amperes, comprised of	7 wires, each	16 S.W.G. diameter,	.022 square inches total sectional area
Branch cables carrying	40.0 Amperes, comprised of	19 wires, each	17 S.W.G. diameter,	.046 square inches total sectional area
" " "	27.0 Amperes, comprised of	7 wires, each	13 S.W.G. diameter,	.028 square inches total sectional area
Leads to lamps carrying	2.1 Amperes, comprised of	1 wires, each	18 S.W.G. diameter,	.0018 square inches total sectional area
Cargo light cables carrying	4.5 Amperes, comprised of	64 wires, each	38 S.W.G. diameter,	flexible square inches total sectional area

## DESCRIPTION OF INSULATION, PROTECTION, ETC.

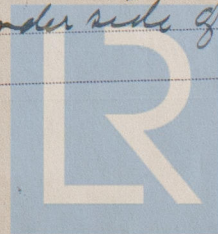
V.I.R. covered 600 megaton C.M.A. grade lead covered & armoured mains  
lead covered in accommodation

Joints in cables, how made, insulated, and protected none except in mechanical junction boxes

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 through beams, clipped to under side of deck  
lead covered & armoured





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

Are they in places always accessible *no*

What special protection has been provided for the cables in open alleyways or where exposed to weather or moisture *Lead covered & armoured*

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

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

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

How are cables carried through beams *Lead a fibre bushed holes* through bulkheads, &c. *W.T. bulkhead plates*

How are cables carried through decks *gal iron deck pipes 18" high fitted with screwed flanges & check nuts*

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, clipped to underside of decks.*

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 terminal boxes fitted with screwed caps*

Where are the main switches and fuses for these lights fitted *In office & engine room*

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 *permanently fixed* How fixed *clipped to under side of deck*

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 main Lateral Board*

**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.

*J. H. Holmes & Co* Electrical Engineers

Date *Sept 28. 14*

**COMPASSES.**

Distance between dynamo or electric motors and standard compass *about 120 ft*

Distance between dynamo or electric motors and steering compass *about 115 ft*

The nearest cables to the compasses are as follows:—

A cable carrying *40* Amperes *25* feet from standard compass *20* feet from steering compass

A cable carrying Amperes feet from standard compass 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 *all* courses in the case of the

standard compass and *nil* degrees on *all* courses in the case of the steering compass.

*SHIPBUILDING & ENGINEERING CO. LIMITED*

Builder's Signature. Date *30. 9. 14.*

**GENERAL REMARKS.**

*This vessel has been fitted, under special survey, with an electric light installation as above, the workmanship is good, on completion it was tested under full working conditions & found satisfactory*

*It is submitted that this vessel is eligible for*

*THE RECORD. Elec. light.*

*Frank A. Sturgeon*

Surveyor to Lloyd's Register of British and Foreign Shipping.

Committee's Minute *FRI. OCT. - 9. 1914*

THE SURVEYORS ARE REQUESTED NOT TO WRITE ACROSS THIS MARGIN.

Im. 11.13.—Transfer.