

Whether single or double wire system is used Continuous.
Single-wire.
 Positions of auxiliary switch boards and numbers of switches on each 30
One in wheelhouse as per attached sheet.
10 switches for navigating lights.

T.S.S. "MAHANA".
LIST OF ELECTRIC LIGHTING AND POWER CIRCUITS.

9 JUL 1917

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DESCRIPTION OF INSULATION, PROTECTION, ETC.

composed of binned copper, conductors, insulated with pure and vulcanised indiarubber
taped and the whole vulcanised together, and braided and compounded overall.

Joints in cables, how made, insulated, and protected

Joints in cables, how made, insulated, and protected No joints

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REPORT ON ELECTRIC LIGHTING INSTALLATION.

Received at London Office SAT. 14 JUL. 1917

Port of Belfast Date of First Survey 1917 Date of Last Survey 1917 No. of Visits 1
 No. in Reg. Book 140 on the Iron or Steel P.S. Mahana Port belonging to Southampton
 Owners Shaw Savill & Albion Co. Ltd. By whom Workman Clark & Co. Ltd. built 1917
 Yard No. 349 Electric Light Installation fitted by Cumberland Forge Coy. Ltd. when fitted 1917

DESCRIPTION OF DYNAMO, ENGINE, ETC.

Two compound wound multipolar direct current generators direct coupled to compound vertical steam engines running at a speed of 300 R.P.M. on a steam pressure of 100 lbs. per sq. in.
 Capacity of Dynamo each 350 Amperes at 100 Volts, whether continuous or alternating current Continuous.
 Where is Dynamo fixed After end of engine room Whether single or double wire system is used Single-wire.
 Position of Main Switch Board After end of engine room having switches to groups 30 of lights, &c. as below
 Positions of auxiliary switch boards and numbers of switches on each One in wheelhouse on Bridge, 10 switches for navigating lights.

If cut outs 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
 If vessel 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 Yes
 Are the cut outs of non-oxidizable metal Yes and constructed to fuse at an excess of 100 per cent over the normal current
 Are all cut outs 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 cut-outs constructed of incombustible materials and fitted on incombustible bases Yes

Total number of lights provided for 544

arranged in the following groups:— (See attached list)

Group	Description	Number of Lights	Amperes
A	lights each of		
B	lights each of		
C	lights each of		
D	lights each of		
E	lights each of		
2	Mast head light with 1 lamps each of	32	Amperes
2	Side light with 1 lamps each of	32	Amperes
136	Cargo lights of	16	Amperes
Also 5		2000	Amperes

If arc lights, what protection is provided against fire, sparks, &c. No arc lamps fitted.

Where are the switches controlling the masthead and side lights placed In wheelhouse on Bridge.

DESCRIPTION OF CABLES.

Main cable carrying 350 Amperes, comprised of 61 wires, each 0.108" L.S.G. diameter, 0.550 square inches total sectional area
 Branch cables carrying 35 Amperes, comprised of 19 wires, each 18 L.S.G. diameter, 0.03375 square inches total sectional area
 Branch cables carrying 10 Amperes, comprised of 7 wires, each 18 L.S.G. diameter, 0.01247 square inches total sectional area
 Leads to lamps carrying 2.4 Amperes, comprised of 3 wires, each 20 L.S.G. diameter, 0.00299 square inches total sectional area
 Cargo light cables carrying 10 Amperes, comprised of 114 wires, each 38 L.S.G. diameter, 0.00319 square inches total sectional area

DESCRIPTION OF INSULATION, PROTECTION, ETC.

Cables composed of binned copper, conductors, insulated with pure and vulcanised indiarubber taped and the whole vulcanised together, and braided and compounded overall.

Joints in cables, how made, insulated, and protected No joints.

Are all the joints of cables thoroughly soldered, resin only having been used as a flux 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 V.I.R. cables run in strong wood casing through 'tween decks.

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 Run in screwed galvanised iron tube made watertight.

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

What special protection has been provided for the cables near boiler casings Lead-covered armoured and Braided.

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

How are cables carried through beams through holes bushed with fibre through bulkheads, &c. In brass w.t. glands. ✓

How are cables carried through decks through watertight deck tubes. ✓

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 bunkers - Screwed w.t. galvanised iron pipe. In 'Tween decks - In strong wood casing.

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 By thick glass shade & strong brass guard over

Where are the main switches and cut outs for these lights fitted In engine room.

If in the spaces, how are they specially protected -----

Are any switches or cut outs fitted in bunkers No.

Cargo light cables, whether portable or permanently fixed Portable

Connected to heavy watertight brass plugs and sockets. Sweated to heavy brass lugs & securely bolted to hull. ✓

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 Sweated to brass washers securely screwed to hull. ✓

Are all the joints with the hull in accessible positions Yes

The installation is ----- supplied with 2 voltmeters and 2 amperemeters fixed in engine room

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 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 2500 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.

P. PRO THE SUNDERLAND FORGE & ENGINEERING CO. LTD.

H. Wright DIRECTOR.

Electrical Engineers

Date 9 JUL 1917

COMPASSES.

Distance between dynamo or electric motors and standard compass 200 FT

Distance between dynamo or electric motors and steering compass 192 FT

The nearest cables to the compasses are as follows:—

A cable carrying 14.4 Amperes 8 feet from standard compass 8 feet from steering compass

A cable carrying 0.6 Amperes 3 feet from standard compass 3 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.

PRO WORKMAN, CLARK & CO., LIMITED.

H. Prother

Builder's Signature.

Date 11th July 1917

GENERAL REMARKS.

This installation is of good description and has been fitted in accordance with the Rules

this vessel is eligible for THE RECORD. Elec light.

HW
14/7/17

R. F. Beveridge

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

Committee's Minute

THE SURVEYORS ARE REQUESTED NOT TO WRITE ACROSS THIS MARGIN.

REPORT FORM No. 1, 3, 34.



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