

REPORT ON ELECTRIC LIGHTING INSTALLATION. No 27147

Port of SUNDERLAND Date of First Survey 18 Jan'y Date of Last Survey 25 Jan'y 1918 No. of Visits 3
 No. in Reg. Book on the Iron or Steel H.M. R.F.A. "Teakol." Port belonging to London
 Built at Sunderland By whom Messrs Short Bros, When built 1918.
 Owners British Admiralty. Owners' Address
 Yard No. 412 Electric Light Installation fitted by Messrs The Sunderland Forge & Eng. Co. Ltd. When fitted 1918.

DESCRIPTION OF DYNAMO, ENGINE, ETC.

1- 100 H.P. Oil driven Set. } Both supplied by the Admiralty.
 1- 50 H.P. " " " " }
 Capacity of Dynamos 570 } Amperes at 105. Volts, whether continuous or alternating current continuous.
285 }
 Where is Dynamo fixed Bottom Platform, Eng. Room, Forward. Whether single or double wire system is used double.
 Position of Main Switch Board For'd End, Eng. Rm, Bottom Platf'm having switches to groups Twelve of lights, &c., as below
 Positions of auxiliary switch boards and numbers of switches on each on Navigating Bridge with 5 switches
controlling side lights, Masthead light, Stern light, Anchor light.
 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 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 100 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 163 lights = 2300 cp. arranged in the following groups :-

Group	Lights	Each of	Candle power	Requiring a total current of	Amperes
1. Forward Acc. etc.	90	16 cp.	1440	56.0	Amperes
2. Aft	14	" "	224	7.9	"
3. Navigation	25	" "	400	70.0	Amperes
4. Eng. Room etc.	—	—	—	285.0	"
5. Windlass	—	—	—	171.0	Amperes
6. Fore Ballast Pump	—	—	—	95.0	"
7. Pump Room Fan	—	—	—	171.0	Amperes
8. Aft Ballast Pump	—	—	—	262.0	"
9. Capstan	—	—	—	32.0	"
10. Steering Motor	—	—	—	10.0	Amperes
11. Projector	—	—	—	93.0	"
12. Electric Heaters	—	—	—	56	Amperes
1. Mast head light with	1	lamps each of 16 cp.	16	1.56	Amperes
2. Side light with	1	lamps each of 32 cp.	32	1.68	Amperes
4. Cargo lights of	8	light 50 cp.	400	—	—

If arc lights, what protection is provided against fire, sparks, &c. 10 amp A.P. Signalling Projector & 10 amp A.P.
Cruiser Arc Flashing Lantern Fitted, suitably encased and protected.
 Where are the switches controlling the masthead and side lights placed Navigating Bridge.

DESCRIPTION OF CABLES.

Cable Description	Amperes	Comprised of	Wires, each	S.W.G. diameter	Square inches total sectional area
Main cable carrying	585	127	101	1.0	48
Branch cables carrying	265	61	101	.48	48
Branch cables carrying	71	37	15	.15	15
Leads to lamps carrying	3	1	17	.0025	.0025
Cargo light cables carrying	15	19	20	.019	.019

DESCRIPTION OF INSULATION, PROTECTION, ETC.

All cables to Admiralty Specification & Requirements.

Joints in cables, how made, insulated, and protected

None.

Are all the joints of cables thoroughly soldered, and the flux used not containing acids or other corrosive substances none 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 clipped to special perforated trays or
Bulkheads - or Decks etc.

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 Covered.*

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

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

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

How are cables carried through beams *Holes bushed with lead. through bulkheads, &c. Admy. Patt. W. I. Glands.*

How are cables carried through decks *Admy. Patt. W. I. Deck Tubes.*

Are any cables run through coal bunkers *none* or cargo spaces *no* or spaces which may be used for carrying cargo, stores, or baggage *Yes.*

If so, how are they protected *Lead Covered run in protected places.*

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 *—*

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 *on Main 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 *Yes*

Are any switches, fuses, or joints of cables fitted in the pump room or companion *No.*

How are the lamps specially protected in places liable to the accumulation of vapour or gas *Special A.P. Fittings*

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 *— to Admy Specification and Requirements.* 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.

P. PRO THE SUNDERLAND FORGE & ENGINEERING CO.

Electrical Engineers

Date *Jan'y. 31st 1918.*

COMPASSES.

Distance between *nearest* electric motor and standard compass *Directo 24 feet.*

Distance between *nearest* electric motors and steering compass *18 feet.*

The nearest cables to the compasses are as follows:—

A cable carrying	<i>10</i>	Amperes	<i>9</i>	feet from standard compass	<i>6</i>	feet from steering compass
A cable carrying	<i>56</i>	Amperes	<i>7</i>	feet from standard compass	<i>led into</i>	<i>feet from steering compass</i>
A cable carrying	<i>56</i>	Amperes	<i>led into</i>	<i>feet from standard compass</i>	<i>7</i>	<i>feet from steering compass</i>

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* course, in the case of the standard compass and *Nil* degrees on *all* course, in the case of the steering compass.

SHORT BROTHERS, LIMITED.

Builder's Signature.

Date *February 13th 1918*

GENERAL REMARKS.

The installation has been satisfactorily fitted in the vessel. Tested at full load and found good.

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

AWD
16/2/18.

Sh. Davis.

Surveyor to Lloyd's Register of Shipping.

Committee's Minute

TUE. 19 FEB. 1918

THE SURVEYORS ARE REQUESTED NOT TO WRITE ACROSS THIS MARGIN.