

REPORT ON ELECTRIC LIGHTING INSTALLATION. No. 10811.

Port of MIDDLESBRO' Date of First Survey and Date of Last Survey while building No. of Visits
 No. in Reg. Book on the Iron or Steel S.S. DIADEM Port belonging to NEW CASTLE
 Built at SUNDERLAND By whom SUNDERLAND SHIP BLDG CO When built 1920
 Owners MESSRS. HALL BROS Owners' Address 4 ROYAL ARCADE NEWCASTLE
 Yard No. 317 Electric Light Installation fitted by SUNDERLAND SHIP BLDG CO S/LAND When fitted 1920

DESCRIPTION OF DYNAMO, ENGINE, ETC.

A FLY WOUND DYNAMO BY SUNDERLAND FORGE & ENGR CO COUPLED DIRECT TO 7" DIA x 5" STROKE
VERTICAL ENGINE SPEED 320 REVS PER MIN

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

Where is Dynamo fixed ENGINE ROOM STARTING PLATFORM Whether single or double wire system is used DOUBLE

Position of Main Switch Board ENG ROOM BULKHEAD NR DYNAMO having switches to groups A, B, C, D, E, F of lights, &c., as below

Positions of auxiliary switch boards and numbers of switches on each ENGINE ROOM NR SWITCHBOARD 9 SWITCHES CONTROLLING ENG ROOM

STAYHOLD TUNNEL WHEEL HOUSE NAVIGATION TELL TALE 5 SWITCHES CONTROLLING MAST SIDE LIGHTS - STERN

WHEEL HOUSE 5 SWITCHES CONTROLLING 2 TELEGRAPHS 2 COMPASS 1 MORSE

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-oxidisable 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 provided for 144 arranged in the following groups:—

A SALOON	38	lights each of METAL FILAMENT 20 candle power requiring a total current of	15.2	Amperes
B ENGINEERS AFT	49	lights each of " " 16 candle power requiring a total current of	14.7	Amperes
C NAVY AFT	28	lights each of " " 18 candle power requiring a total current of	8.4	Amperes
D ENG ROOM	29	lights each of " " 16 candle power requiring a total current of	8.7	Amperes
E CARGO	5	lights each of 500 WATT 1/2 WATT candle power requiring a total current of	25.	Amperes
F WIRELESS	2	Mast head light with 1 lamps each of 32 candle power requiring a total current of	2.5	Amperes
	2	Side light with 1 lamps each of 32 candle power requiring a total current of	2.5	Amperes
	5	Cargo lights of 1- 500 WATT 1/2 WATT 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 IN WHEEL HOUSE ON BRIDGE

DESCRIPTION OF CABLES.

Main cable carrying 100 Amperes, comprised of 37 wires, each 16 S.W.G. diameter, .117 square inches total sectional area
 Branch cables carrying 40 Amperes, comprised of 7 wires, each 16 S.W.G. diameter, .022 square inches total sectional area
 Branch cables carrying 30 Amperes, comprised of 7 wires, each 18 S.W.G. diameter, .0125 square inches total sectional area
 Leads to lamps carrying 5 Amperes, comprised of 3 wires, each 20 S.W.G. diameter, .005 square inches total sectional area
 Cargo light cables carrying 25 Amperes, comprised of 7 wires, each 18 S.W.G. diameter, .0125 square inches total sectional area

DESCRIPTION OF INSULATION, PROTECTION, ETC.

PURE AND VULCANISED RUBBER, ARMOUR BRAIDED CABLE IN CARGO - MACHINERY SPACES

LEAD SHEATHED CABIN SALOON - ENGRS ACCOM

Joints in cables, how made, insulated, and protected NONE EXCEPT MECHANICAL

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 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 CLIPPED TO UNDERSIDE DECK

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 *Mast Heads V.I.R*

Cables in Galvanised Iron Pipe For Starboard lights *Cable type sheathed cable*

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

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

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

How are cables carried through beams *Bushed Red fibre* through bulkheads, &c. *Bulkhead Glands*

How are cables carried through decks *Deck Tubes*

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 *Armoured Braided clipped to underside of Deck*

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 *Plug Boxes*

In vessels fitted on the single wire system, how is the dynamo terminal fixed to the hull of vessel *Double wired*

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*

VESSEL 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 500 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.

For THE SUNDERLAND SHIPBUILDING CO. LD.
John Loshach Electrical Engineers Date *30. 9. 20*

COMPASSES.

Distance between dynamo or electric motors and standard compass *SECRETARY. 100 ft.*

Distance between dynamo or electric motors and steering compass *90*

The nearest cables to the compasses are as follows:—

A cable carrying	<i>9.3</i>	Amperes	<i>18</i>	feet from standard compass	<i>12</i>	feet from steering compass
A cable carrying	<i>56</i>	Amperes	<i>led into</i>	feet from standard compass	<i>6</i>	feet from steering compass
A cable carrying	<i>56</i>	Amperes	<i>6</i>	feet from standard compass	<i>led into</i>	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 *no* degrees on *any* course in the case of the standard compass and *no* degrees on *any* course in the case of the steering compass.

For THE SUNDERLAND SHIPBUILDING CO. LD.
John Loshach Builder's Signature. Date *30. 9. 20*

GENERAL REMARKS.

SECRETARY.

This installation has been fitted in accordance with the Rules: is of good materials and workmanship and on completion was examined under full working conditions and found satisfactory

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

E. Lee Lt. Coll. 12/11/20

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

Committee's Minute

THE SURVEYORS ARE REQUESTED NOT TO WRITE ACROSS THIS MARGIN.

