

REPORT ON ELECTRIC LIGHTING INSTALLATION. No. 7869

Port of NEWCASTLE-ON-TYNE Date of First Survey 13/12/21 Date of Last Survey 12/1/22 No. of Visits 5
 No. in on the Steel 83. "22 Gills" Port belonging to London
 Reg. Book 37199 Built at Newcastle on Tyne By whom Armstrong Whitworth & Co Ltd When built 1922
 Owners London & Lancashire Ltd Owners' Address
 Yard No. 97a Electric Light Installation fitted by Armstrong Whitworth & Co Ltd When fitted 1922

DESCRIPTION OF DYNAMO, ENGINE, ETC.

2 in the open type compound wound multipolar 12 KW Dynamos each coupled
direct to a single cylinder vertical steam engine
 Capacity of Dynamos 12 KW each Amperes at 100 Volts, whether continuous or alternating current Continuous
 Where 2 Dynamos fixed on dynamo flat aft of engine room Whether single or double wire system is used double
 Position of Main Switch Board 100 having switches to groups all + 500 and 1000 of lights, &c., as below
 Positions of auxiliary switch boards and numbers of switches on each 10 way 500 in dynamo flat, 10 way 1000 outside engine room,
5 way 500 in stbd passage bridge deck, 4 way 1000 + 8 way 500 in stbd passage bridge deck, 6 way 500 in fore passage
bridge deck, 8 way 500 in main deck forward, 10 way 500 in wheel house, 6 way 500 aft pump room entrance + 5 way 500 forward
 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 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 Cartidge fuses
 Are all switches and fuses constructed of incombustible materials and fitted on incombustible bases yes
 Total number of lights provided for 801 + 24 fane arranged in the following groups:—
 A Eng + boiler rooms 45 lights 37-200, 2-2000, 8-16 candle power requiring a total current of 16.2 Amperes
 B Aft acc. 11 fane + 38 lights 34-200, 3-160, 1-32 candle power requiring a total current of 16.4 Amperes
 C Fore acc. 14 fane + 77 lights 57-200, 8-160, 9-32 candle power requiring a total current of 37.2 Amperes
 D Navigation 2 fane + 22 lights 3-200, 6-160, 8-160, 5-32 candle power requiring a total current of 25.0 Amperes
 E Workshop 19 lights 9-200, 2-160, 8-32 candle power requiring a total current of 14.1 Amperes
 F Pump Room 19 lights 9-200, 2-160, 8-32 candle power requiring a total current of 10.0 Amperes
 2 Mast head light with 1 lamp each of 32 candle power requiring a total current of 12.6 Amperes
 2 Side light with 1 lamp each of 32 candle power requiring a total current of 2.4 Amperes
 2 Cargo lights of 8 in 10 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 In wheel house.

DESCRIPTION OF CABLES.

For remaining branch cables see attached list
 Main cable carrying 120 Amperes, comprised of 37 wires, each .064 diameter, .12 square inches total sectional area
 Branch cables carrying 80.9 Amperes, comprised of 37 wires, each .053 diameter, .2 square inches total sectional area
 Branch cables carrying 4.4 Amperes, comprised of 7 wires, each .053 diameter, .0145 square inches total sectional area
 Leads to lamps carrying 2.6 Amperes, comprised of 3 wires, each .029 diameter, .002 square inches total sectional area
 Cargo light cables carrying 9.6 Amperes, comprised of 3 wires, each .036 diameter, .003 square inches total sectional area

DESCRIPTION OF INSULATION, PROTECTION, ETC.

All cables in engine rooms lead covered + removed. Cables running along fore +
aft gangway lead covered + taped + run in galvanised iron piping. Cables in accommodation
spaces lead covered. Cables exposed in any way to damage are in galvanised iron piping.
 Joints in cables, how made, insulated, and protected none made.

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 Lead covered + removed cables clipped to bulkheads with
galvanised iron clips. Lead covered cable clipped to bulkheads with brass clips, lead covered +
taped cable run in galvanised iron piping with expansion loops, drawn in boxes and
one expansion gland. The piping being clipped to the fore + aft gangway.

S.S. "EL GRILLO".

DESCRIPTION OF CABLES (CONTINUED FROM REPORT SHEET)

branch cable carrying 16.2 amps. comprised of 7 wires each ".052 dia. total sec. area .0145". ✓
" " " 10.0 " comprised of 3 wires each ".036 dia. total sec. area .003 ". ✓
" " " 14.1 " comprised of 7 wires each ".036 dia. total sec. area .007 ". ✓
" " " 25.0 " comprised of 7 wires each ".064 dia. total sec. area .0225". ✓
" " " 37.2 " comprised of 19 wires each ".052 dia. total sec. area .04 ". ✓
" " " 11.8 " comprised of 7 wires each ".064 dia. total sec. area .0225 ". ✓
" " " .8 " comprised of 7 wires each ".029 dia. total sec. area .0045". ✓
" " " 12.2 " comprised of 7 wires each ".036 dia. total sec. area .007". ✓
" " " 7.8 " comprised of 7 wires each ".036 dia. total sec. area .007 ". ✓
" " " 7.6 " comprised of 7 wires each ".052 dia. total sec. area .0145". ✓



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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 cables run in galvanised iron piping or lead covered or armoured cable* ✓

What special protection has been provided for the cables near galleys or oil lamps or other sources of heat *lead covered cable* ✓

What special protection has been provided for the cables near boiler casings *lead-covered or armoured cable* ✓

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

How are cables carried through beams *by lead bushed holes* ✓ through bulkheads, &c. *by watertight glands* ✓

How are cables carried through decks *by water tight 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 *lead covered run in galv. w.t. pipe in bunkers; lead covered or armoured in cargo spaces* ✓

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 *no*

Cargo light cables, whether portable or permanently fixed *portable from Connection box* How fixed *Cables to Conn. box secured to bulkhead*

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 *near switchboard*

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. *Gas tight 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 *2500* 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. *(C.M. of Grade of Cable used)*

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.

A. W. & Co.

Electrical Engineers

Date *28/1/22*

COMPASSES.

Distance between dynamo or electric motors and standard compass *255 feet*

Distance between dynamo or electric motors and steering compass *250 feet*

The nearest cables to the compasses are as follows:—

A cable carrying	Amperes	feet from standard compass	feet from steering compass
<i>6</i>	<i>8</i>	<i>1</i>	
<i>6</i>	<i>1</i>	<i>5</i>	
<i>6</i>	<i>8</i>	<i>2</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

Builder's Signature.

Date *Jan'y. 30th. 1922.*

GENERAL REMARKS.

The above installation is in accordance with the British Rules.

The vessel is eligible in my opinion for notation as light, whether

It is submitted that

this vessel is eligible for

THE RECORD. *The light*

Fe 19-10.0 applied for 30/1/22.

H. 3/2/22

W. T. Badger.

Surveyor to Lloyd's Register of Shipping.

Committee's Minute