

REPORT ON ELECTRIC LIGHTING INSTALLATION. No. 75245

Port of NEWCASTLE-ON-TYNE Date of First Survey 12/12/21 Date of Last Survey 17/1/22 No. of Visits 5
 No. in Reg. Book 38420 on the Iron Steel S.S. "Miro" Port belonging to Tonsberg
 Built at Newcastle on Tyne By whom Armstrong Whitworth & Co Ltd When built 1922
 Owners Wilhelm Wilhelmsen Owners' Address Christiania
 Yard No. 946 Electric Light Installation fitted by Armstrong Whitworth & Co Ltd When fitted 1922

DESCRIPTION OF DYNAMO, ENGINE, ETC.

One in the Open type multipolar compound wound 10 K.W. dynamo coupled direct to a single cylinder vertical steam engine

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

Where is Dynamo fixed On dynamo flat aft end of engine room Whether single or double wire system is used double

Position of Main Switch Board On dynamo flat aft end of engine room having switches to groups A B H + all other lights, &c., as below

Positions of auxiliary switch boards and numbers of switches on each 1-10 way DB on dynamo flat in engine room, 1-2 way SB on 2-8 way

DB in engine room, 1-auxiliary switchboard in passage, Bridge deck, 1-2 way SB + 1-10 way DB in overall store bridge deck, 1-8 way DB in store, 1-6 way DB in Chalk house, 1-6 way DB @ 5th floor, bridge space, 1-6 way DB @ port aft door bridge space

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 "Red" fuses used

Are all switches and fuses constructed of incombustible materials and fitted on incombustible bases yes

Total number of lights provided for 181 + 6 fuses arranged in the following groups:—

A Engine room	36 lights each of 1-100W, 31-30W, 4-16	candle power requiring a total current of	12.7	Amperes
B Aft sec 2 fuses	59 lights each of 57-30W, 2-32cp, 5-16	candle power requiring a total current of	22.2	Amperes
C Fore sec	4 fuses 48 lights each of 42-30W, 1-32cp, 5-16	candle power requiring a total current of	19.2	Amperes
D Wireless	19 lights each of 2-30W, 4-32cp, 7-16cp 6-6	candle power requiring a total current of	11.0	Amperes
E Navigation	9 lights each of 3-30W, 6-16	candle power requiring a total current of	26.0	Amperes
F Workshop motor	10 lights each of 4-30W, 6-16	candle power requiring a total current of	4.5	Amperes
G Fore pump room	1 lamp each of 32	candle power requiring a total current of	4.8	Amperes
H Mast head light with	1 lamp each of 32	candle power requiring a total current of	2.4	Amperes
I Side light with	1 lamp each of 32	candle power requiring a total current of	2.4	Amperes
J Cargo lights of	6 in the 16	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 Chalk room

DESCRIPTION OF CABLES.

(For remaining branch cables see attached list)

Main cable carrying	100 Amperes, comprised of	19 wires, each .083 S.W.G. diameter,	.1 square inches total sectional area
Branch cables carrying	64.5 Amperes, comprised of	34 wires, each .083 S.W.G. diameter,	.2 square inches total sectional area
Branch cables carrying	26.0 Amperes, comprised of	7 wires, each .052 S.W.G. diameter,	.0145 square inches total sectional area
Leads to lamps carrying	2.2 Amperes, comprised of	3 wires, each .029 S.W.G. diameter,	.002 square inches total sectional area
Cargo light cables carrying	3.6 Amperes, comprised of	3 wires, each .029 S.W.G. diameter,	.002 square inches total sectional area

DESCRIPTION OF INSULATION, PROTECTION, ETC.

Cables in officers Quarters lead covered. Cables in crew quarters, stores, engine + boiler rooms + bridge space lead covered + armoured. Cables running along fore + aft gangway lead covered + taped and run in galvanised wrought iron piping cable exposed in any way to damage run 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 + armoured cable in engine room + clipped to bulkheads with galvanised iron clips, lead covered cable in officers quarters + lead covered + armoured cable in crew quarters clipped to bulkheads with brass clips, lead covered + taped cable run in galvanised iron piping with expansion boxes drawn in boxes + one expansion gland, the piping being clipped to the fore + aft gangway

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 cable run in galvanized iron piping, or lead covered & armoured cable*

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

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

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

How are cables carried through beams *by lead lined holes* through bulkheads, &c. *by water tight glands*

How are cables carried through decks *by water tight 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 *lead covered run in piping or lead covered & armoured*

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 socket* How fixed *Cables socket clipped 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 *main 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 light 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.A. 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

COMPASSES.

Distance between dynamo or electric motors and standard compass *252 feet from dynamo, 26 feet from binnacle*

Distance between dynamo or electric motors and steering compass *254 " " " " 21 " " "*

The nearest cables to the compasses are as follows:—

A cable carrying	Amperes	feet from standard compass	feet from steering compass
<i>.2</i>	<i>4</i>	<i>2</i>	
<i>.2</i>	<i>1</i>	<i>8</i>	
<i>.2</i>	<i>8</i>	<i>1</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.

SIR W. G. ARMSTRONG, WHITWORTH & CO. LTD.

H. G. Williams

Builder's Signature.

Date *7th February 1922.*

GENERAL REMARKS.

The above installation is in accordance with the Society's Rules. The vessel is eligible for notation electric light & binnacle.

It is submitted that this vessel is eligible for

THE RECORD.

Elec. Light

W. T. Badger

Surveyor to Lloyd's Register of Shipping.

Committee's Minute

FRI. 24 FEB. 1922

Elec. Light



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THE SURVEYORS ARE REQUESTED NOT TO WRITE ACROSS THIS MARGIN.

DESCRIPTION OF CABLES (CONTINUED FROM REPORT SHEET). Report No. 75245.

SHIP NO. 976 - S.S. "M I R L O".

Cables carrying 22.2 amps. comprised of 7 wires each .052 dia. .0145 sq. in. area. ✓														
"	"	12.7	"	"	"	7	"	.029	"	.0045	"	"	"	✓
"	"	4.8	"	"	"	7	"	.036	"	.007	"	"	"	✓
"	"	4.5	"	"	"	7	"	.029	"	.0045	"	"	"	✓
"	"	11.0	"	"	"	7	"	.036	"	.007	"	"	"	✓
"	"	19.2	"	"	"	7	"	.064	"	.0225	"	"	"	✓
"	"	25.0	"	"	"	7	"	.064	"	.0225	"	"	"	✓
"	"	9.9	"	"	"	7	"	.036	"	.007	"	"	"	✓
"	"	12.3	"	"	"	7	"	.036	"	.007	"	"	"	✓
"	"	15.9	"	"	"	7	"	.036	"	.007	"	"	"	✓
"	"	3.3	"	"	"	7	"	.064	"	.0225	"	"	"	✓

28-1-22.



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...in addition to weathering cable exposed in any way to damage due to galvanic corrosion...