

MON. APR. 24, 1912

Rpt. 13.

Received at London Office

REPORT ON ELECTRIC LIGHTING INSTALLATION. No. 8732

Port of *Belfast* Date of First Survey *March 22* Date of Last Survey *April 13* No. of Visits *9*
 No. in on the *Iron or Steel* *British Workman* belonging to
 Reg. Book Built at *Belfast* By whom *Workman Clark & Co Ltd* When built *1922*
 Owners *British Tanker Co Ltd* Owners' Address *London*
 Yard No. *465* Electric Light Installation fitted by *Sunderland Forge Co Ltd* When fitted *1922*

DESCRIPTION OF DYNAMO, ENGINE, ETC.

2 - 120 K.V.A. Steam driven Turbo-alternator sets 3 phase 50 cycles complete with gearing etc. 1 - 10 K.W. Compound wound multipolar dynamo direct coupled to single cylinder engine.

Capacity of Dynamo *91* Amperes at *110* Volts, whether continuous or alternating current *Continuous*
 Alternators *2* at 120 K.V.A. *220* Alternating

Where is Dynamo fixed In *Main Engine Room* Whether single or double wire system is used *Double*
 Alternator Power - *8* at 220 volts

Position of Main Switch Boards In *Main Engine Room* having switches to group *Lighting-7* at 110V of lights, &c., as below

Positions of auxiliary switch boards and numbers of switches on each In *Saloon House* - *8* switches

In *Chart House* - *10* switches

In *Engine Room* - *10* switches

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 provided for *211* arranged in the following groups :-

A Aft Accom	36	lights each of 16 cp & 1 at 32	candle power requiring a total current of	19.8	Amperes
B. Wireless				30.0	
C Saloon Nav. & For	116	lights each of 16 cp & 8 at 32	candle power requiring a total current of	55.5	Amperes
D. Engine Room	31	" " " 16cp 4 at 1000 & 1 at 200 c.p.	" " " "	27.3	
E Boiler Room	12	lights each of 16 cp & 2 at 200	candle power requiring a total current of	10.7	Amperes
F Cumberland Electrolytic Gear		lights each of	candle power requiring a total current of	6.0	Amperes
G Oil Separator		lights each of	candle power requiring a total current of	8.5	Amperes
H For 220 volt circuits - see fly.					
2 Mast head lights	1	lamp each of 32	candle power requiring a total current of ea	1.2	Amperes
2 Side lights	1	lamp each of 32	candle power requiring a total current of ea	1.2	Amperes
2 Cargo lights of each 6 lights at 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 *Wheel House*

DESCRIPTION OF CABLES.

Main cable carrying	120 KVA Amperes, comprised of	37	wires, each .103"	S.W.G. diameter,	.3	square inches total sectional area,
Branch cables carrying	124 Amperes, comprised of	19	wires, each .083"	S.W.G. diameter,	.1	square inches total sectional area
Branch cables carrying	55.5 Amperes, comprised of	19	wires, each .064"	S.W.G. diameter,	.022	square inches total sectional area
Leads to lamps carrying	1.8 Amperes, comprised of	3	wires, each .029"	S.W.G. diameter,	.003	square inches total sectional area
Cargo light cables carrying	3.3 Amperes, comprised of	70	wires, each .0076"	S.W.G. diameter,	.003	square inches total sectional area

DESCRIPTION OF INSULATION, PROTECTION, ETC.

Power Cable - 3 core copper conductors paper insulated, lead covered, served, armoured, jute served and compounded overall.

Lighting Cable - Tinned copper conductor, insulated with pure & vulcanised rubber etc. & finished in Accommodation - lead covered and braided and In Machinery Spaces etc. Lead covered and armoured & braided.

Joints in cables, how made, insulated, and protected

None fitted.

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 & braided cables run in channel iron troughing, below fore and aft gangway, and filled in solid Bitumen compound*



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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, armoured and braided

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 none near boiler casings

What special protection has been provided for the cables in engine room Lead covered armoured and braided.

How are cables carried through beams None through beams through bulkheads, &c. glands made W.T.

How are cables carried through decks In deck tubes made W.T.

Are any cables run through coal bunkers no or cargo spaces no or spaces which may be used for carrying cargo, stores, or baggage no

If so, how are they protected

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 How fixed In watertight boxes

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 by gastight fittings with stout glass bowl fitted & wired outside space, & arranged to shine through hole out in deck.

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 2,500 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.

P. Pro The Sunderland Forge & Engineering Company Ltd.

R. H. Gough Electrical Engineers

Date 14th April, 1922.

COMPASSES.

Distance between dynamo ~~or electric motors~~ and standard compass 250 feet

Distance between dynamo ~~or electric motors~~ and steering compass 243 "

The nearest cables to the compasses are as follows:—

A cable carrying	Amperes	feet from standard compass	feet from steering compass
<u>6.5</u>	<u>20</u>	<u>14</u>	
<u>0.3</u>	<u>3</u>	<u>3</u>	

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.

W. A. Stumble Builder's Signature. Date 20th April 1922

GENERAL REMARKS.

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

Fee £37-15-0

Advised 19-4-22.

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

Elec. Light.

R. M. Bennett

24/4/22 Surveyor to Lloyd's Register of Shipping.

Committee's Minute

FRI APR 28 1922



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THE SURVEYORS ARE REQUESTED NOT TO WRITE ACROSS THIS MARGIN.

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FLY TO ELECTRIC LIGHTING INSTALLATION REPORT FOR
S.S. "BRITISH WORKMAN"

220 Volt POWER CIRCUITS.

. Circulating Pump	requiring a current of 124 amperes per terminal.
. " "	" " " " 124 " "
. Forced Draught Fan	" " " " 86 " "
. " "	" " " " 86 " "
. Feed Pumps	" " " " 47 " "
. Steering Gear	" " " " 50 " "
. Lighting Motor Generator	" " " " 16.5 " "
. Refrigerator	" " " " 27 " "

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