

# REPORT ON ELECTRIC LIGHTING INSTALLATION. No. 8897

Port of Belfast Date of First Survey 1921 Oct 16 Date of Last Survey Mar 27/23 No. of Visits 9  
 No. in Reg. Book on the Iron or Steel S.S. Inveravon Port belonging to London  
 Built at Belfast By whom Harland & Wolff Ltd When built 1923  
 Owners British Mercantile Petroleum Coy Ltd. Owners' Address Harland & Wolff Ltd When fitted 1923  
 Yard No. 591 Electric Light Installation fitted by Harland & Wolff Ltd

### DESCRIPTION OF DYNAMO, ENGINE, ETC.

Two 8 x 3 stroke forced lubrication engines each direct coupled to one 12.5 K.W. Dynamo running at 600 R.P.M.

Capacity of Dynamo 125 Amperes at 100 Volts, whether continuous or alternating current Continuous  
 Where is Dynamo fixed Engine Room Whether single or double wire system is used Double  
 Position of Main Switch Board Engine Room having switches to groups A.B.C.D.E.F.G.H.I.J.K. of lights, &c., as below  
 Positions of auxiliary switch boards and numbers of switches on each 2 in E.R. each with 6 switches  
2 in wheelhouse one with 6 switches - the other with 9 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 238 arranged in the following groups :-

Group	Description	Number of Lights	Wattage per Light	Total Wattage	Candle Power	Current (Amperes)
A	Navigation	5	32	160	16.0	16.0
B	Wireless	4	15	60	15.0	15.0
C	Amidships	59	2.4	141.6	26.4	26.4
D	Fore	12	2.4	28.8	4.45	4.45
E	Aft	35	2.4	84	12.3	12.3
	Mast head light with	1	32	32	2.4	2.4
	Side light with	1	32	32	2.4	2.4
	6 @ 5 Watt			30		
	2 @ 1/2 Watt			1		
	2 @ 1 St			2		
	Cargo lights of	1000	16	16000		

If arc lights, what protection is provided against fire, sparks &c. yes

Where are the switches controlling the masthead and side lights placed In wheelhouse

### DESCRIPTION OF CABLES.

Main cable carrying 125 Amperes, comprised of 3 wires, each .003 S.W.G. diameter, .200 square inches total sectional area  
 Branch cables carrying 29.7 Amperes, comprised of 4 wires, each .044 S.W.G. diameter, .0225 square inches total sectional area  
 Branch cables carrying 20.0 Amperes, comprised of 4 wires, each .044 S.W.G. diameter, .010 square inches total sectional area  
 Leads to lamps carrying 2.4 Amperes, comprised of 3 wires, each .036 S.W.G. diameter, .003 square inches total sectional area  
 Cargo light cables carrying 5 Amperes, comprised of 110 wires, each .0076 S.W.G. diameter, .005 square inches total sectional area

### DESCRIPTION OF INSULATION, PROTECTION, ETC.

Cables throughout are of 2500 megohms class & CMA quality insulated with pure vulcanized rubber lead covered steel armored & braided overall except in accommodation amidships where they are lead covered only

Joints in cables, how made, insulated, and protected no joints in main cables, those made in branch wiring are in properly constructed junction boxes of porcelain protected by cast iron covers

Are all the joints of cables thoroughly soldered, and the flux used not containing acids or other corrosive substances yes 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 Cables dipped direct to bulkheads or rim plating & protected throughout by lead covering steel armoring & braided overall except in accommodation amidships which is lead covered only.

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 *Protected by lead casing steel armoured & braided throughout those on top of expansion tank further protected by iron troughing*

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

What special protection has been provided for the cables near boiler casings *Lead armoured & braided*

What special protection has been provided for the cables in engine room *Lead armoured & braided*

How are cables carried through beams *Lead or fibre lashing through bulkheads, etc. Glands*

How are cables carried through decks *in deck pipes lashed or with glands*

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 *permanently* How fixed *Lead covered armoured & braided clipped & bulkheads or steel plating*

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 *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 *Pumps in Engine Room*

How are the lamps specially protected in places liable to the accumulation of vapour or gas *Vessel fitted for carrying oil in bulk F.P. above 150° F*

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.

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.



COMPASSES. Electrical Engineers Date

Distance between dynamo or electric motors and standard compass *118 ft from dynamo & 18 feet from wireless rotary*

Distance between dynamo or electric motors and steering compass *118 " " " " "*

The nearest cables to the compasses are as follows:—

A cable carrying	16	Amperes	6	feet from standard compass	5	feet from steering compass
A cable carrying	15	Amperes	20	feet from standard compass	14	feet from steering compass
A cable carrying	96	Amperes	12	feet from standard compass	15	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 *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 *6/4/23*

GENERAL REMARKS.

*This installation is fitted in accordance with the Rules & tried under steam under full load. Materials workmanship good.*

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

*Wm. Buttles* Surveyor to Lloyd's Register of Shipping.

Committee's Minute TUE. 17 APR. 1923

9a. of *Belfast* Continuation of Report No. 8897 dated on the *S.S. "Immeron"*

*additional lights.*

F	Cargo	38 lights each of 16 cp. + 2 @ 1000 cp	requiring total 29.2	amps.
G	Machine	12 " " 24 " 1 " 600 "	} 10.8 "	
H	"	5 " " 24 " 1 " 600 "		} 10.5 "
I	Pathe		12.0 "	
J	Drilling Machine		20.0 "	



*William Buttles*

THE SURVEYORS ARE REQUESTED NOT TO WRITE ACROSS THIS MARGIN.