Rpt. 13.

RECEIVED
13 APR 1917
No.

Received at London Office

REPORT ON ELECTRIC LIGHTING INSTALLATION. No. 7798

Port of Belfast Date of First Survey Sept 13 - 1916 Date of Last Survey Apl 4 - 1917 No. of Visits 14

on the ~~Iron or~~ Steel T.S.S. Lucticia Port belonging to Liverpool

Built at Belfast By whom Harland & Wolff Ltd When built 1917

Oceanic Steam Nav. Co Owners' Address Liverpool

436 Electric Light Installation fitted by Harland & Wolff Ltd When fitted 1917

TION OF DYNAMO, ENGINE, ETC.

NCLOSED FORCED LUBRICATION ENGINES & DYNAMOS, WITH CYLINDERS 16" & 25" × 12" STROKE, EACH GIVING AN OUTPUT OF 300 K.W.
OLTS, WHEN RUNNING AT A SPEED OF 500 R.P.M. — ALSO TWO DIESEL OIL ENGINES & DYNAMOS, EACH CAPABLE OF
50 K.W. AT 110 VOLTS.

y of Dynamo [STEAM SETS] 2710 Amperes at 110 VOLTS. Volts, whether continuous or alternating current CONTINUOUS.

" " [DIESEL SETS] 454 " " 110 " " " " " CONTINOUS.

is Dynamo fixed [MAIN SETS] ELECTRIC ENGINE ROOM. Whether single or double wire system is used SINGLE.

" " [DIESEL SETS] EMERGENCY DYNAMO HOUSE. SALOON DK. AFT.

of Main Switch Board ON PLATFORM IN ELECTRIC ENG. ROOM. having ~~switches~~ CIRCUIT BREAKERS to groups I TO XI ETC. of lights, &c., as ~~below~~ PER SHEDULE ATTACHED.

s of auxiliary switch boards and numbers of switches on each. ONE EMERGENCY SWITCHBOARD IN EMERGENCY DYNAMO SALOON DK. AFT. HAVING 6 CIRCUIT BREAKERS & 8 SWITCHES.

uts are fitted on main switch board to the cables of main circuit YES. and on each auxiliary switch board to the cables of auxiliary cuits YES. and at each position where a cable is branched or reduced in size YES and to each lamp circuit YES.

t is wired on the double wire system are cut outs fitted to both flow and return wires or cables of all circuits including lamp circuits YES.

cut outs of non-oxidizable metal YES and constructed to fuse at an excess of 100 per cent over the normal current

cut outs fitted in easily accessible positions YES. Are the fuses of standard dimensions YES If wire fuses are used

permanent instructions fitted on or near each switch board giving particulars of proper size of fuse for each circuit YES.

witches and cut-outs constructed of incombustible materials and fitted on incombustible bases YES.

umber of lights provided for 4536 arranged in the following groups :—

SEE SCHEDULE ATTACHED

___ lights each of ___ candle power requiring a total current of ___ Amperes

___ lights each of ___ candle power requiring a total current of ___ Amperes

___ lights each of ___ candle power requiring a total current of ___ Amperes

___ lights each of ___ candle power requiring a total current of ___ Amperes

Mast head light with 2 lamps each of 32 candle power requiring a total current of 2·2 Amperes

Side light with 2 lamps each of 32 candle power requiring a total current of 2·2. Amperes

6 Cargo lights of 24 - OF 96 C.P. EACH 2 - 12 ARC LAMPS. candle power, whether incandescent or arc lights BOTH.

ghts, what protection is provided against fire, sparks, &c. ARC ENCLOSED IN GLASS GLOBES. PROTECTED BY RE GUARDS.

re the switches controlling the masthead and side lights placed IN WHEELHOUSE.

TION OF CABLES.

le carrying 2720 Amperes, comprised of 4 wires, each 1·25 SQ.IN. ~~S.W.G.~~ diameter, 5·0 ✓ square inches total sectional area

ables carrying 520 Amperes, comprised of 91 wires, each 11 L.S.G. diameter, ·943 ✓ square inches total sectional area

ables carrying 330. Amperes, comprised of 61 wires, each 12 L.S.G. diameter, ·508 ✓ square inches total sectional area

lamps carrying 2·4 Amperes, comprised of 3 wires, each 20 L.S.G. diameter, ·003 ✓ square inches total sectional area

ht cables carrying 3·3 Amperes, comprised of 90 wires, each 36 L.S.G. diameter, ·004 ✓ square inches total sectional area

TION OF INSULATION, PROTECTION, ETC.

LES THROUGHOUT ARE OF 2500 Ω GRADE 4 C.M.A. STANDARD, THE CONDUCTOR IS COVERED WITH ONE LAYER OF RUBBER, 2 COATS OF VULCANISING RUBBER & 1 LAYER OF PREPARED TAPE, THE WHOLE VULCANISED TOGETHER & D OVERALL. IN MACHINERY SPACES & GALLEYS. THE CABLES ARE PROTECTED BY LEAD COVERING & STEEL ARMOURING, DED OVERALL.

cables, how made, insulated, and protected SOLDERED, USING RESIN AS A FLUX, INSULATED WITH PURE RUBBER & ED TAPES, & PROTECTED BY STRONG WOOD CASING.

Are all the joints of cables thoroughly soldered, resin only having been used as a flux 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 NO.

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 IN STRONG WOOD CASING THROUGHOUT ACCOMMODATION, LEAD COVERING & STEEL ARMOURING & BRAIDED OVERALL IN MACHINERY SPACES & GALLEYS. & BY SOLID DRAWN STEEL TUBES WHERE EXPOSED TO WEATHER.

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 IN SOLID DRAWN STEEL TUBES.

What special protection has been provided for the cables near galleys or oil lamps or other sources of heat LEAD COVERED & STEEL ARMOURED, BRAIDED OVERALL

What special protection has been provided for the cables near boiler casings LEAD COVERED, STEEL ARMOURED, BRAIDED OVERALL.

What special protection has been provided for the cables in engine room LEAD COVERED, STEE ARMOURED, BRAIDED OVERALL.

How are cables carried through beams THROUGH FIBRE BUSHES. *through bulkheads, &c.* { IF W.T. THROUGH W.T. GLANDS, OTHERWISE FIBRE BUSHES.

How are cables carried through decks GAL. IRON PIPES BUSHED WITH FIBRE.

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 IN COAL BUNKERS & BAGGAGE ROOM.

If so, how are the lamp fittings and cable terminals specially protected STRONG CAST IRON FITTINGS WITH HINGED COVERS FOR BUNKER LIGHTS. STRONG GUARDED FITTINGS FOR BAGGAGE ROOM LIGHTS.

Where are the main switches and cut outs for these lights fitted IN STOKEHOLD FOR BUNKER LIGHTS. SWITCH & FUSE BOX IN PORT PASSAGE AT UPPER DK. FOR BAGGAGE RM. LIGHTS.

If in the spaces, how are they specially protected

Are any switches or cut outs fitted in bunkers NO.

Cargo light cables, whether portable or permanently fixed PERMANENTLY. *How fixed* STRONG WOOD CASING.

In vessels fitted on the single wire system, how is the dynamo terminal fixed to the hull of vessel EARTHED IN CABLE TRUNK WITH SPECIAL BRASS CLAMPS.

How are the returns from the lamps connected to the hull SWEATED TO 3/8" TINNED BRASS EARTH SCREWS.

Are all the joints with the hull in accessible positions YES.

The installation is YES *supplied with* ~~a~~ *voltmeters and* YES. ~~an~~ *amperemeters fixed* ON MAIN & EMERGENCY SWITCHBOARDS.

VESSELS BUILT FOR CARRYING PETROLEUM.

In vessels built for carrying petroleum, are all switches and cut-outs fitted in positions not liable to the accumulation of petroleum vapour or gas

Are any switches, cut outs, 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 100 per cent. that of pure copper.

Insulation of cables is guaranteed to have a resistance of not less than 2500 megohms per statute mile after 24 hours' immersion in seawater.

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.

HARLAND & WOLFF LTD. *Electrical Engineers* *Date* APRIL 19TH 1917.

COMPASSES.

Distance between dynamo or electric motors and standard compass 20 FT. TO NEAREST MOTOR.

Distance between dynamo or electric motors and steering compass 22 FT. TO NEAREST MOTOR.

The nearest cables to the compasses are as follows:—

A cable carrying	35	*Amperes* 7	*feet from standard compass*	12	*feet from steering compass*
A cable carrying	78	*Amperes* 19	*feet from standard compass*	21	*feet from steering compass*
A cable carrying	21	*Amperes* 20	*feet from standard compass*	22	*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 2 *degrees on* E & W. *course in the case of the standard compass and* 2 *degrees on* E & W. *course in the case of the steering compass.*

For HARLAND & WOLFF LTD.,
J. Johnstone *Builder's Signature.* *Date* 19th April 191 7.

GENERAL REMARKS. This installation is of good description throughout, and has been fitted in accordance with the Rules.

It is submitted that this vessel is eligible for THE RECORD. Elec. light. JWD 30/4/17

R. J. Beveridge
Surveyor to Lloyd's Register of British and Foreign Shipping.

Committee's Minute

REPORT FORM No. 15.—

41

EW

WB19/23