

21 JUL 1931

Rpt. 13.

No. 10653

# REPORT ON ELECTRIC FITTINGS.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

Date of writing Report 19 When handed in at Local Office 28 7 1931 Port of Belfast Received at London Office 29 JUL 1931

No. in Survey held at BELFAST Date, First Survey 14 April Last Survey 8 July 1931  
Reg. Book. 91202 on the Steel twin sc. KOSMOS II. (Number of Visits..... 9)

Tons { Gross 14800.  
Net 8800.

Built at BELFAST By whom built WORKMAN CLARK & CO. Yard No. 522 When built 1931

Owners Hvalfangselskabet "Kosmos II" A/S. Port belonging to Sandefjord.

Electric Light Installation fitted by THE SUNDERLAND FORGE & ENG. CO. LTD Contract No. 522 When fitted 1931

Is the Vessel fitted for carrying Petroleum in bulk No.

System of Distribution DOUBLE WIRE

Pressure of supply for Lighting 110 volts, Heating 110 volts, Power 110 volts.

Direct or Alternating Current, Lighting DIRECT Power DIRECT.

If alternating current system, state frequency of periods per second —

Has the Automatic Governor been tested and found efficient when the whole load is suddenly thrown on or off YES.

Generators, do they comply with the requirements regarding rating YES, are they compound wound YES

are they over compounded 5 per cent. YES, if not compound wound state distance between each generator —

Where more than one generator is fitted are they arranged to run in parallel YES, is an adjustable regulating resistance fitted in series with each shunt field YES

Are all terminals accessible, clearly marked, and furnished with sockets YES, are they so spaced or shielded that they cannot be accidentally earthed, short circuited, or touched YES Are the lubricating arrangements of the generators as per Rule YES

Position of Generators ENGINE ROOM AFT ON  $\Phi$ .

is the ventilation in way of the generators satisfactory YES, are they clear of all inflammable material YES

if situated near unprotected woodwork or other combustible material, state distance of same horizontally from or vertically above the generators — and —, are the generators protected from mechanical injury and damage from water, steam or oil YES.

are their axes of rotation fore and aft YES.

Earthing, are the bedplates and frames of the generating plant efficiently earthed YES are the prime movers and their respective generators in metallic contact YES.

Main Switch Boards, where placed ENGINE ROOM AFT ON  $\Phi$ .

If the generators and main switchboard are not placed in the same compartment, is each generator provided with a fuse on each insulated pole as near as possible to the terminals of the generator, additional to that provided on the main switchboard —

Switchboards, are they placed in accessible positions, free from inflammable gases and acid fumes YES.

are they protected from mechanical injury and damage from water, steam or oil YES, if situated near unprotected woodwork or other combustible material, state distance of same horizontally from or vertically above the switchboards — and —

are they constructed wholly of durable, non-ignitable non-absorbent materials YES, is all insulation of high dielectric strength and of permanently high insulation resistance YES.

if semi-insulating material is used, are all conducting parts insulated from the slab with mica or micaite or other non-hygroscopic insulating material, and the slab similarly insulated from its framework YES.

and is the frame effectively earthed YES. Are the fittings as per Rule regarding:— spacing or shielding of live parts YES, accessibility of all parts YES, absence of fuses on back of board YES, proportion of omnibus bars YES, individual fuses to voltmeter, pilot or earth lamp YES, connections of switches YES.

Main Switchgear, description of switchgear for each generator and each outgoing circuit, and arrangement of equalizer switches 400 AMP TRIPLE POLE

AUTOMATIC CIRCUIT BREAKER, WITH O/LOAD & TIME LAG ON TWO POLES & 3<sup>RD</sup> POLE

ACTING AS EQUALISER (NON-AUTOMATIC) DOUBLE POLE SWITCHES & FUSES FOR EACH OUTGOING CIRCUIT.

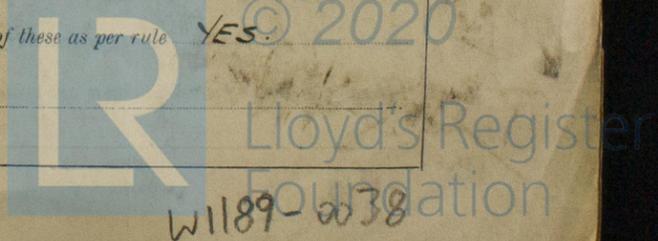
Instruments on main switchboard 3 ammeters 3 voltmeters — synchronising device for paralleling purposes.

Earth Testing, state what means are provided at the main switchboard for indicating the state of the insulation of the system LAMPS THRO'

SWITCHES & FUSES

Switches, Circuit Breakers and Fusible Cut-outs, do these comply with the requirements of the Rules YES.

Joint Boxes Section and Distribution Boards, is the construction, protection, insulation, material, and position of these as per rule YES.



**Cables:** Single, twin, concentric, or multicore SINGLE, 2L4 CORE the cables insulated and protected as per Tables IV or V of the Rules YES.

**Fall of Pressure,** state maximum between bus bars and any point of the installation under maximum load 50 VOLTS.

**Cable Sockets and other connections,** are the ends of all cables having a sectional area of 0.04 square inch and above provided with soldering sockets YES.

**Paper Insulated Cables,** If cables are paper covered, is the dielectric at the exposed ends of the conductor protected from moisture by being suitably sealed with insulating compound YES.

**Cable Runs,** are the cables fixed as far as possible in accessible positions not exposed to drip or accumulation of water or oil, or to high temperature from boilers, steam pipes, uptakes or other hot objects, or to avoidable risk of mechanical damage MAIN CABLES RUN ALONG PORT & STARBOARD SIDES IN FACTORY IN CABLE TRAY.

**Support and Protection of Cables,** state how the cables are supported and protected LEAD COVERED, ARMOURED & BRAIDED IN ENGINE ROOM & FACTORY. ALSO 2 CORE PAPER LEAD IN FACTORY SUPPORTED BY GALV. IRON & BRASS CLIPS.

If cables are run in wood casings, are the casings and caps secured by screws —, are the cap screws of brass —, are the cables run in separate grooves —. If armoured and lead covered cables are secured by metal clips, are the clips spaced as per Table VIII YES.

**Refrigerated Chambers,** if lights are fitted, are the cables and fittings in accordance with the special requirements YES.

**Joints in Cables,** state if any, and how made, insulated, and protected NONE MADE.

**Watertight Glands and Deck Tubes,** are all cables passing through decks and watertight bulkheads provided with deck tubes or watertight glands YES.

**Bushes in Beams and Non-watertight Partitions,** where unarmoured cables pass through beams and non-watertight partitions, are the holes efficiently bushed YES state the material of which the bushes are made LEAD & TIBRE.

**Earthing Connections,** state what earthing connections are fitted and their respective sectional areas —, are their connections made as per Rule —.

**Alternative Lighting,** are the groups of lights in the propelling machinery space arranged as per Rule YES.

**Emergency Supply,** state position and method of control of the emergency supply and how the generator is driven —.

**Navigation Lamps,** are these separately wired YES, controlled by separate switch and separate fuses YES, are the fuses double pole YES.

are the switches and fuses grouped in a position accessible only to the officers on watch YES.

has each navigation lamp an automatic indicator as per Rule YES.

**Secondary Batteries,** are they constructed and fitted as per Rule YES.

**Fittings,** are all fittings on weather decks, in stakeholds and engine rooms and wherever exposed to drip or condensed moisture, watertight YES.

are any fittings placed in spaces in which goods are liable to be stacked in close proximity to them; if so, how are they protected NONE SO PLACED.

are any fittings placed in spaces where inflammable or explosive dust or gases are liable to be present, if so, how are they protected GASTIGHT PENDANTS.

how are the cables led GI. TUBING.

where are the controlling switches situated OUTSIDE.

**Searchlight Lamps,** No. of —, whether fixed or portable —, are their fittings as per Rule —.

**Arc Lamps,** other than searchlight lamps, No. of —, are their live parts insulated from the frame or case —, are their fittings as per Rule —.

**Motors,** are their working parts readily accessible YES, are the coils self-contained and readily removable for replacement YES.

are the brushes, brush holders, terminals and lubricating arrangements as per Rule YES, are the motors placed in well-ventilated compartments in which inflammable gases cannot accumulate and clear of all inflammable material YES.

are they protected from mechanical injury and damage from water, steam or oil YES are their axes of rotation fore and aft YES.

if situated near unprotected woodwork or other combustible material, are the motors of the totally enclosed, pipe ventilated, forced draught, drip or flame proof type —, if not of this type, state distance of the combustible material horizontally or vertically above the motors — and —.

**Control Gear and Resistances,** are the generator field and motor speed regulators, starters and controllers constructed and fitted as per Rule YES.

**Lightning Conductors,** where lightning conductors are required, are these fitted as per Rule —.

**Ships carrying Oil having a Flash Point less than 150° F.** Have the special requirements of the Rules been complied with regarding switches, joint boxes, section and distribution boards, protection of cables, method of distribution, lead of cables, lights and fittings —.

If portable lamps for use in dangerous spaces are supplied, are they of a type approved by the Home Office —.

**PARTICULARS OF GENERATING PLANT.**

DESCRIPTION OF GENERATOR.	No. of	RATED AT				DRIVEN BY	WHERE DRIVEN BY AN INTERNAL COMBUSTION ENGINE.	
		Kilowatts.	Volts.	Ampères.	Revs. per Min.		Fuel Used.	Flash Point of Fuel.
MAIN	3	50	110	454	STEAM ENGINE			
AUXILIARY								
EMERGENCY								
ROTARY TRANSFORMER								

**GENERATOR, LIGHTING AND HEATING CONDUCTORS.**

DESCRIPTION.	CONDUCTORS.		COMPOSITION OF STRAND.		TOTAL MAXIMUM CURRENT AMPERES.		Approximate Length (Lead and Return) Feet.	Insulated with	HOW PROTECTED.
	No. per Pole.	Total Effective Area per Pole Sq. Ins.	No.	Diameter.	In Circuit.	Rule.			
MAIN GENERATOR	1	5	61	.103	454	486	60	V.C.	L.C. & BRAIDED.
EQUALISER CONNECTIONS	1	2	37	.083		266			
AUXILIARY GENERATOR									
EMERGENCY GENERATOR									
ROTARY TRANSFORMER MOTOR									
ROTARY TRANSFORMER GENERATOR									
ENGINE ROOM & BOILER ROOM	1	.06	12	.084	65	83	90	V.I.R.	L.C. & BRAIDED.
AUXILIARY SWITCHBOARDS									
ELECTRIC RANGE	1	.075	19	.072	55	141	950	V.C.	L.S.W. ARMOURED & BRAIDED.
OIL PURIFIERS ETC 2 CORE	3	37	.103		380	385	540	P.I.	L.C. & BRAIDED.
FACTORY VENT FAN SET	1	.25	37	.093	285	309	550	V.C.	L.S.W. & L. BRAIDED.
DET. ACCOMMODATION	1	.075	19	.072	60	141	100	V.C.	L.S.W. & L. BRAIDED.
FACTORY LIGHTING	1	.15	37	.072	105	152	530	V.I.R.	L.C. & L. BRAIDED.
ACCOMMODATION FORD	1	.15	37	.072	85	152	950	V.I.R.	L.C. & L. BRAIDED.
NAVIGATION	1	.045	7	.052	5.5	37	950	V.I.R.	L.C. & L. BRAIDED.
ENGINEERS WORKSHOP	1	.03	19	.044	41	53	250	V.I.R.	L.C. & L. BRAIDED.
BAKERS OVEN	1	.075	19	.072	110	141	100	V.C.	L.C. & L. BRAIDED.
WELDING SUPPLY	1	.1	19	.083	110	118	150	V.I.R.	L.C. & L. BRAIDED.
WIRELESS	1	.06	19	.064	55	83	1000	V.I.R.	L.C. & L. BRAIDED.
SEARCHLIGHT									
MASTHEAD LIGHT	1	.002	3	.029	.4	7.8	620	V.I.R.	L.C. & L. BRAIDED.
SIDE LIGHTS	1	.002	3	.029	.4	7.8	60	V.I.R.	L.C. & L. BRAIDED.
COMPASS LIGHTS	1	.002	3	.029	.4	7.8	30	V.I.R.	L.C. & L. BRAIDED.
CARGO	1	.12	37	.064	40	130	950	V.I.R.	L.C. & L. BRAIDED.
ARC LAMPS									
HEATERS									

**MOTOR CONDUCTORS.**

DESCRIPTION.	No. of Motors.	CONDUCTORS.		COMPOSITION OF STRAND.		TOTAL MAXIMUM CURRENT AMPERES.		Approximate Length (Lead and Return) Feet.	Insulated with	HOW PROTECTED.
		No. per Pole.	Total Effective Area per Pole Sq. Ins.	No.	Diameter.	In Circuit.	Rule.			
BALLAST PUMP										
MAIN BILGE LINE PUMPS										
GENERAL SERVICE PUMP										
EMERGENCY BILGE PUMP										
SANITARY PUMP										
CIRC. SEA WATER PUMPS										
CIRC. FRESH WATER PUMPS										
AIR COMPRESSOR										
FRESH WATER PUMP										
ENGINE TURNING GEAR										
ENGINE REVERSING GEAR										
LUBRICATING OIL PUMPS										
OIL FUEL TRANSFER PUMP										
WINDLASS										
WINCHES, FORWARD										
WINCHES, AFT										
STEERING GEAR—										
(a) MOTOR GENERATOR										
(b) MAIN MOTOR										
WORKSHOP MOTOR SEE ABOVE										
VENTILATING FANS										

All Conductors are of annealed copper conforming to British Standard Specification No. 7.  
 The Insulated Conductors are guaranteed to withstand the immersion and resistance tests specified in the Rules.  
 The foregoing is a correct description.

p.pro. THE SUNDERLAND FORGE & ENGINEERING CO. LD. Electrical Engineers. Date 24.7.31.

*W. Park.*

COMPASSES.

Distance between electric generators or motors and standard compass 450 FEET.

Distance between electric generators or motors and steering compass 440 FEET.

The nearest cables to the compasses are as follows:—

A cable carrying 5 Ampères 10 feet from standard compass 8 feet from steering compass.

A cable carrying 35 Ampères 6 feet from standard compass LED INTO feet from steering compass.

A cable carrying 35 Ampères LED INTO ~~feet from~~ standard compass 6 feet from steering compass.

Have the compasses been adjusted with and without the electric installation at work at full power YES.

Has the effect of switching on and off circuits, motors and other electro-magnetic apparatus within the vicinity of the compasses been noted YES.

The maximum deviation due to electric currents was found to be nil degrees on all courses in the case of the standard compass, and nil degrees on all courses in the case of the steering compass.

WORKMAN CLARK (1928) LIMITED

*F. Cunningham*

Builder's Signature. Date

Is this installation a duplicate of a previous case  If so, state name of vessel

General Remarks (State quality of workmanship, opinions as to class, &c.)

*This installation has been fitted on the vessel tender Special survey. The materials and workmanship are sound & good. It has been tried out under working conditions with satisfactory results. In my opinion the vessel is eligible for notation "Electric Light".*

It is submitted that this vessel is eligible for THE RECORD. — Elec. Light. J.K.W. 11.8.31

Total Capacity of Generators 150 Kilowatts.

The amount of Fee ... £ 34: 0: { When applied for, 28.7.19.31  
 Travelling Expenses (if any) £ : : { When received, 5.8.19.31

*John K. Williams.*  
 Surveyor to Lloyd's Register of Shipping.

*Elec.*

Committee's Minute

Assigned

*Elec Lt.*

1m.9.30.—Transfer.  
 (The Surveyors are requested not to write on or below the space for Committee's Minute.)