

# REPORT ON ELECTRIC FITTINGS.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

13 MAR 1928

Received at London Office

Date of writing Report 12-3-1928. When handed in at Local Office

10 Port of

PLYMOUTH

No. in Survey held at Dartmouth.  
Reg. Book.Date, First Survey 5-12-24. Last Survey 4<sup>th</sup> Feb'y. 1928.  
(Number of Visits.....)

on the Steel Screw Lug "EL TIGIL"

Tons { Gross 129.4.  
Net Nil

Built at Dartmouth. By whom built Philip &amp; Son, Ltd. Yard No. 418. When built 1928.

Owners Sudan Government. Port belonging to Port Sudan.

Electric Light Installation fitted by Philip &amp; Son, Ltd. Contract No. ✓ When fitted 1928.

System of Distribution *Single wire.*

Pressure of supply for Lighting *110* volts, Heating ✓ volts, Power ✓

Direct or Alternating Current, Lighting *Direct.* Power ✓

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 overload *yes.*, are they compound wound *yes.*

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

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

Are all terminals accessible and clearly marked *yes.*, are they so spaced or shielded that they cannot be accidentally earthed, or short circuited *yes.*

Position of Generators *Starboard side of Engine Room.*

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 axis 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 *Forward Engine Room bulkhead.*

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, incombustible 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 connected to one pole insulated from the slab with mica or micanite and the slab similarly insulated from its framework ✓, and is the frame effectively earthed *yes.*

*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 *Double pole quick break switches and double pole fuses for generator and outgoing circuits.*

Instruments on main switchboard *one* ammeters *one* 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 *2 Earth lamps.*Switches, Circuit Breakers and Fusible Cut-outs, do these comply with the requirements of the Rules *yes.*Section and Distribution Boards, is the construction, protection, insulation, material, and position of these as per rule *yes.*



Insulation of Cables, state type of cables, single or twin Single are the cables insulated and protected as per Tables III or IV of the Rules Yes.

Fall of Pressure, state maximum between bus bars and any point of the installation under maximum load ✓

Cable Sockets and other connections, are the ends of all cables having a sectional area of 0.007 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 ✓

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 Yes.

Support and Protection of Cables, state how the cables are supported and protected On perforated steel plates and  
Constructional parts of the vessel with brass clips and screws.

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 VI Yes.

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

Joints in Cables, state if any, and how made, insulated, and protected ✓

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 Positions, 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.

Earthing Connections, state what earthing connections are fitted and their respective sectional areas Earth Lamps. 3 - .036.

, are their connections made as per Rule ✓

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

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, are separate screens provided for the use of oil and electric side lights Yes.

are separate oil lanterns provided for the mast head lights and side lights Yes.

Fittings, are all fittings on weather decks, in stokeholds 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 ✓

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

, how are the cables led

Perforated Cable Plate + Brass clips + screws  
where are the controlling switches situated on Switchboard in Engine Room.

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

Are 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 ✓, are the coils self-contained and readily removable for replacement ✓.

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

are they protected from mechanical injury and damage from water, steam or oil ✓ are their axis of rotation fore and aft ✓

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 as per Rule Yes.

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

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.

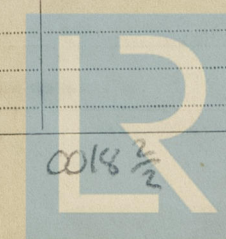
DESCRIPTION OF GENERATOR.	No. of	RATED AT				DRIVEN BY.	WHERE DRIVEN BY AN INTERNAL COMBUSTION ENGINE.	
		Kilowatts.	Volts.	Ampères.	Revs. per Min.		Fuel Used.	Flash Point of Fuel.
MAIN ...	<u>one</u>	<u>2</u>	<u>110</u>	<u>18</u>	<u>1000</u>	<u>Stison enclosed steam engine.</u>	<u>✓</u>	<u>✓</u>
AUXILIARY ...								
EMERGENCY ...								
ROTARY TRANSFORMER								

## LIGHTING AND HEATING CONDUCTORS.

Ref. No.	DESCRIPTION.	No. of Conductors.	Effective Area of each Conductor. Sq. Ins.	COMPOSITION OF STRAND.		Total Maximum Current. Amperes.	Approximate Length. (Lead and Return.) Feet.	Insulated with	HOW PROTECTED.
				No.	Diameter.				
	MAIN GENERATOR...	<u>4</u>	<u>.036</u>	<u>4</u>	<u>.064</u>	<u>12</u>	<u>20</u>	<u>V.I.R.</u>	<u>Lead covered.</u>
	AUXILIARY GENERATOR...	<u>2</u>	<u>.02214</u>						
	EMERGENCY GENERATOR...								
	ROTARY TRANSFORMER...								
	AUXILIARY SWITCHBOARDS...		<u>.00299</u>			<u>about 2 1/2</u>	<u>40</u>	<u>V.I.R.</u>	<u>Lead covered.</u>
	ENGINE ROOM ...	<u>3 2</u>	<u>.036</u>	<u>3</u>	<u>.036</u>	<u>1 1/2</u>	<u>60</u>	<u>V.I.R.</u>	<u>Lead covered.</u>
	BOILER ROOM ...	<u>2</u>	<u>.00299</u>	<u>3</u>	<u>.036</u>				
	<u>Accommodation</u>	<u>2</u>	<u>.00299</u>	<u>3</u>	<u>.036</u>	<u>about 3 1/2</u>	<u>40</u>	<u>V.I.R.</u>	<u>Lead covered.</u>
	<u>aft.</u>	<u>2</u>	<u>.00299</u>	<u>3</u>	<u>.036</u>	<u>under 1</u>	<u>40</u>	<u>V.I.R.</u>	<u>Lead covered.</u>
	WIRELESS ...								
	SEARCHLIGHT ...								
	MASTHEAD LIGHT...	<u>2</u>	<u>.00194</u>	<u>3</u>	<u>.029</u>	<u>under 1</u>		<u>V.I.R.</u>	<u>Lead covered.</u>
	SIDE LIGHTS...	<u>4</u>	<u>.00194</u>	<u>3</u>	<u>.029</u>			<u>V.I.R.</u>	<u>Lead covered.</u>
	COMPASS LIGHTS...								
	POOP LIGHTS ...								
	CARGO LIGHTS ...								
	ARC LAMPS ...								
	HEATERS ...								

## MOTOR CONDUCTORS.

Ref. No.	DESCRIPTION.	No. of Motors.	Effective Area of each Conductor. Sq. Ins.	COMPOSITION OF STRAND.		Total Maximum Current. Amperes.	Approximate Length. (Lead and Return.) Feet.	Insulated with	HOW PROTECTED.
				No.	Diameter.				
	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 ...								
	WORKSHOP MOTOR ...								
	VENTILATING FANS ...								



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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.

FOR PHILIP & SON, LIMITED

Electrical Engineers.

Date

#### COMPASSES.

Distance between electric generators or motors and standard compass

Distance between electric generators or motors and steering compass

Approximately 30 feet.

The nearest cables to the compasses are as follows:—

A cable carrying  $\frac{1}{2}$  Ampères 2 ft. feet from standard compass 2 ft. feet from steering compass.

A cable carrying  $\checkmark$  Ampères  $\checkmark$  feet from standard compass  $\checkmark$  feet from steering compass.

A cable carrying  $\checkmark$  Ampères  $\checkmark$  feet from standard compass  $\checkmark$  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  $\checkmark$  course in the case of the standard

compass, and  $\checkmark$  degrees on  $\checkmark$  course in the case of the steering compass.

FOR PHILIP & SON, LIMITED.

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 electric lighting plant has been installed under Special Survey and in accordance with the Rules. The materials and workmanship are good and the installation has been tested with satisfactory results. In my opinion the installation is suitable for a classed vessel.

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

Elec. Light

15/3/28.

Total Capacity of Generators 2 Kilowatts

The amount of Fee ... £ 2 : 0 : 12-3-1928.

Travelling Expenses (if any) £  $\checkmark$  : 31-3-28.

When applied for,

When received,

J. W. Reid.  
Surveyor to Lloyd's Register of Shipping.

Committee's Minute

Assigned

Elec Light



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