

# REPORT ON ELECTRICAL EQUIPMENT.

-5 FEB 1937

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

Received at London Office

-4 FEB 1937

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Port of *Sunderland*No. in Survey held at *Sunderland*Date, First Survey *30th Dec. 1936* Last Survey *29th Jan'y. 1937*Reg. Book. *Suppl*(Number of Visits *13*)87271 on the *S.S. "Arthur Wright"*Tons { Gross *1091*  
Net *622*Built at *Sunderland*By whom built *W. Pickering & Sons Ltd.* Yard No. *236*When built *1937*Owners *The Mayor, Aldermen, & Burgesses of the County Borough of Brighton.*Port belonging to *Shoreham*Electric Light Installation fitted by *The Sunderland Forge & Eng'g Co. Ltd.* Contract No. *236* When fitted *1937*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 — volts.Direct or Alternating Current, Lighting *Direct* Power *Direct (for heating)*

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 temperature rise *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 *Only one fitted* is an adjustable regulating resistance fitted in series with each shunt field *Yes*Have certificates of test results for machines under 100 kw. been submitted and approved *Yes* Have machines over 100 kw. been inspected by the Surveyors during manufacture and testing —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 starboard side*, 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 starboard side*

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*is it of an approved type *Yes*, if semi-insulating material is used, are all conducting parts insulated from the slab with mica or micanite or other non-hygroscopic insulating material, and the slab similarly insulated from its framework *Yes*is the non-hygroscopic insulating material of an approved type *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*, temperature rise of omnibus bars *Yes*individual fuses to voltmeter, pilot or earth lamp *Yes*, are moving parts of switches alive in the "off" position *No*are all screws and nuts securing connections effectively locked *Yes* are any fuses fitted on the live side of switches *No*

Main Switchgear, description of switchgear for each generator and each outgoing circuit, and arrangement of equalizer switches

*D.P. sw. & D.P. fuse on dynamo mains; S.P. sws. & D.P. fuses on outgoing circuits*

Are turbine driven generators fitted with emergency trip switch as per rule — Are cupboards or compartments containing switchboards composed of fire-resisting material or lined with approved material —

Instruments on main switchboard / ammeter /

synchronising device for paralleling purposes. For compound machines is the ammeter connected on the opposite pole to equaliser connection —

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

*E lamps coupled to E through switches & fuses* Switches, Circuit Breakers and Fusible Cut-outs, do these comply with the requirements of the Rules *Yes*are the fusible cutouts of an approved type *Yes* have the reversed



current protection devices been tested under working conditions —

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 twin* are the cables insulated and protected as per Tables IV, V, X or XI of the Rules *Yes*

If the cables are insulated otherwise than as per Rule, are they of an approved type —

Fall of Pressure, state maximum between bus bars and

any point of the installation under maximum load *3.5 volts*

Cable Sockets, are the ends of all cables having a sectional

area of 0.04 square inch and above provided with soldering sockets *Yes*

Paper Insulated and Varnished Cambric Insulated Cables.

If conductors are paper or varnished cambric insulated, is the dielectric at the exposed ends of the conductor protected from moisture by being suitably sealed with insulating compound — or waterproof insulating tape —

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*

Are cables in machinery spaces, galleys, laundries, bathrooms and lavatories lead covered or run in conduit *Yes, lead covered*

Support and Protection of Cables, state how the cables are supported and protected *Cables in engine room L.C. AFB clipped up, cables in Tween deck & cargo spaces L.C. AFB in wood casing; L.C. cables clipped up in assem.*

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, are the cables and fittings in accordance with the special requirements —

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 & fibre*

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 —

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

where are the controlling switches situated —

are all fittings suitably ventilated *Yes*, are all switches and lampholders constructed wholly of non-ignitable, non-absorbent materials *Yes*

Heating and Cooking Appliances, are they constructed and fitted as per Rule *Yes*, are air heaters constructed and fitted as per Rule —

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 —, 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 axes 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 —

have machines of over 100 BHP been inspected by the Surveyors during manufacture and testing —

Control Gear and Resistances, are the generator

field and motor speed regulators, starters and controllers constructed and fitted as per Rule —

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 —

are all fuses of the fitted cartridge type — are they of an approved type —

If portable lamps for use in dangerous spaces are supplied, are they of a self-contained, battery-fed type approved by the Home Office —

Spare Gear, if the vessel is for open sea service have spares been supplied as per Rule *Yes*



# PARTICULARS OF GENERATING PLANT.

DESCRIPTION OF GENERATOR.	No. of	RATED AT				DRIVEN BY	WHERE DRIVEN BY AN INTERNAL COMBUSTION ENGINE.	
		Kilowatts.	Volts.	Amps.	Revs. per Min.		Fuel Used.	Flash Point of Fuel.
MAIN ...	1	10	110	91	850	Single cylinder 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 Nominal Area per Pole Sq. Ins.	No.	Diameter.	Circuit.	Rule.			
MAIN GENERATOR ...	1	.1	19	.083	91	118	16	V.I.R.	L.C.A.B. Single
EQUALISER CONNECTIONS ...									
AUXILIARY GENERATOR ...									
EMERGENCY GENERATOR ...									
ROTARY TRANSFORMER MOTOR GENERATOR ...									
ENGINE ROOM ...	1	.003	3	.036	5.5	12.0	32	S.	L.C.A.B. Twin
BOILER ROOM ...									
AUXILIARY SWITCHBOARDS ...									
ACCOMMODATION Midship	1	.01	7	.044	17.5	31.0	350	S.	S. S.
do Aft	1	.003	3	.036	6.0	12.0	90	S.	S. S.
WIRELESS Telephone	1	.0045	7	.029	6.0	18.2	40	S.	L.C.
SEARCHLIGHT ...	The above cable is the feed from the accom. dist. box to the charging panel								
MASTHEAD LIGHT ...	1	.0015	1	.044	.4	6.1	325	V.I.R.	L.C.A.B. Twin
SIDE LIGHTS ...	1	.0015	1	.044	.4	6.1	40	S.	L.C.
COMPASS LIGHTS ...	1	.0015	1	.044	.33	6.1	360	S.	L.C.A.B. Twin
STEER LIGHTS ...	1	.0015	1	.044	.4	6.1	360	S.	L.C.A.B. Twin
CARGO LIGHTS ...									
FLOOD LAMP 2 x 300 watts	1	.0017	40	.0076	2.7	5.0	30	S.	Cab type
HEATERS Cooking stove 6.25 K.W.	1	.04	19	.052	57.0	64.0	350	S.	L.C.A.B. Single

## 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 Nominal 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 ...										
VENTILATING FANS ...										



All Conductors are of annealed copper conforming to British Standard Specification No. 7 (or International Electro-technical Commission Publication No. 28).

The Insulated Conductors are guaranteed to withstand the immersion and resistance tests specified in the Rules.

The foregoing is a correct description.

*Messrs. Smedley and Joyce 75, Lebel  
Atkyns.*

Electrical Engineers.

Date 30 - 1 - 1937.

#### COMPASSES.

Distance between electric generators or motors and standard compass 195 feet

Distance between electric generators or motors and steering compass 185 feet

The nearest cables to the compasses are as follows:—

A cable carrying 23 Amperes on the ~~foot from~~ standard compass 10 feet from steering compass.

A cable carrying 23 Amperes 10 feet from standard compass on the ~~foot from~~ steering compass.

A cable carrying Amperes feet from standard compass 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.

FOR WM. PICKERSGILL & SONS, LIMITED.

*Wm. J. Pickersgill*  
Chairman & Managing Director,

Builder's Signature.

Date 2<sup>nd</sup> February 1937

Is this installation a duplicate of a previous case *Yes* If so, state name of vessel *S. S. Henry Moon*

General Remarks (State quality of workmanship, opinions as to class, &c.) *The above installation has been fitted out under special survey. The materials used and the workmanship are good. On completion the dynamo, governor, main board, switches, fuses, cables and fittings were examined and tested under working conditions and found satisfactory and suitable for a classed vessel. The insulation resistance was tested and found good.*

*Noted*

*Yam*

*5.2.37*

Total Capacity of Generators 10 Kilowatts.

The amount of Fee ... £ 10 : - : 3 FEB. 1937

Travelling Expenses (if any) £ : : 5.4.37 6/4

Committee's Minute

TUE 9 FEB 1937

Assigned *See other F.E. report*

*Santerson*

Surveyor to Lloyd's Register of Shipping.