

Rpt. 13.

No. 91707

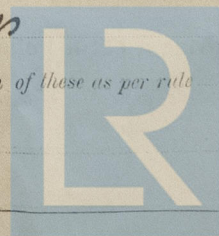
REPORT ON ELECTRIC FITTINGS.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

7 SEP 1934

Date of writing Report 19 When handed in at Local Office 6.9.34 Port of Newcastle-on-Tyne
 No. in Survey held at Newcastle. Date, First Survey 27/7/34 Last Survey 4/9/34
 Reg. Book. 89608 on the S. S. "Hai Yuan" (Number of Visits 6)
 Tons { Gross 3270
 Net 1900
 Built at Newcastle-on-Tyne. By whom built Swan Hunter & Wigham Richardson Yard No. 1456 When built 1934.
 Owners China Merchants Steam Nav Co Port belonging to London
 Electric Light Installation fitted by Swan Hunter & Wigham Richardson Ltd Contract No. 1456 When fitted 1934.
 Is the Vessel fitted for carrying Petroleum in bulk No.

System of Distribution Double wire
Pressure of supply for Lighting 110 volts, **Heating** — 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 —, 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 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, 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
 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 Double pole switch & fuses for main generator, and single pole switches with double pole fuses for each outgoing circuit.
Instruments on main switchboard 1 ammeters 1 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 Earth lamps connected to earth through switches and 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.



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Cables: Single, twin, concentric, or multicore Single are 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 4.5 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 None.

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 Lead covered & armoured in Machinery spaces, lead covered in accommodation, braided in gals. conduits through holds.

If cables are run in wood casings, are the casings and caps secured by screws none, 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 None.

Joints in Cables, state if any, and how made, insulated, and protected None.

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.

Earthing Connections, state what earthing connections are fitted and their respective sectional areas None.

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 Emergency dynamo and switchboard fitted in dynamo room on Bridge Deck, after end.
Circuits controlled by single pole switches with double pole fuses. Dynamo driven by Diesel Engine.

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 — None.

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 yes in tween decks protected by hinged cast iron covers.

are any fittings placed in spaces where inflammable or explosive dust or gases are liable to be present, if so, how are they protected none.

how are the cables led —

where are the controlling switches situated —

Searchlight Lamps, No. of None, whether fixed or portable —, are their fittings as per Rule —

Arc Lamps, other than searchlight lamps, No. of None, 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 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.	Amps.	Revs. per Min.		Fuel Used.	Flash Point of Fuel.
MAIN ...	1	20	110	182		Steam Engine		
AUXILIARY ...								
EMERGENCY ...	1	12	110	109		Diesel Engine.		
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	.1964	34	.083	182	184	25	Rubber	L. C. & A.
EQUALISER CONNECTIONS ...									
AUXILIARY GENERATOR ...									
EMERGENCY GENERATOR ...	1	.1168	34	.064	109	130	25	"	"
ROTARY TRANSFORMER ...									
ENGINE ROOM ...	1	.01046	4	.044	20	31	60	"	"
BOILER ROOM ...									
AUXILIARY SWITCHBOARDS ...									
Navigation ...	1	.00455	4	.029	6	18.2	240	"	Lead covered.
Aft Cargo ...	1	.01046	4	.044	20	31	60	"	L. C. & A.
Forward Cargo ...	1	.01046	4	.044	22	31	180	"	"
Accommodation ...	1	.01046	4	.044	20	31	260	"	Lead Covered.
1st Class Accommodation ...	1	.01046	4	.044	20	31	180	"	"
2nd Class ...	1	.00455	4	.029	6	18.2	220	"	Gals. Conduit
3rd Class ...	1	.0396	19	.052	50	64	20	"	Lead covered.
Officers, Eng'rs, Crew ...	1	.02214	4	.064	15	46	220	"	"
WIRELESS ...									
SEARCHLIGHT ...	1	.00194	3	.029	36	4.8	400	"	"
MASTHEAD LIGHT ...	1	.00194	3	.029	36	4.8	100	"	"
SIDE LIGHTS ...	1	.00194	3	.029	09	4.8	50	"	"
COMPASS LIGHTS ...	1	.00194	3	.029	36	4.8	520	"	"
SEARCH LIGHT ...									
CARGO LIGHTS ...									
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 ...	1	1	.0396	19	.052	60	64	80	Rubber	L. C. & A.
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 ...										
Refrig. Motor ...	1	1	.00194	3	.029	6	4.8	30	Rubber	Lead covered

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
SWAN, HUNTER & WIGHAM RICHARDSON, LTD.

Electrical Engineers.

Date 5th Sept 1934.

COMPASSES.

Distance between electric generators or motors and standard compass 105 feet.

Distance between electric generators or motors and steering compass 110 feet.

The nearest cables to the compasses are as follows:—

A cable carrying .09 Ampères in ~~feet~~ from standard compass in ~~feet~~ from steering compass.

A cable carrying .36 Ampères 4 feet from standard compass 4 feet from steering compass.

A cable carrying 1.8 Ampères 4 feet from standard compass 10 feet from steering compass.

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

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

The maximum deviation due to electric currents was found to be *See 11/9/34* degrees on *11/9/34* course in the case of the standard compass, and *See 11/9/34* degrees on *11/9/34* course in the case of the steering compass.

SWAN, HUNTER & WIGHAM RICHARDSON, LTD.

R. S. Morrison

Builder's Signature.

Date 5th September 1934.

Is this installation a duplicate of a previous case *no* If so, state name of vessel

General Remarks (State quality of workmanship, opinions as to class, &c. *The above instⁿ has been*)

fitted under survey & tested under working conditions when completed & found satisfactory. Insulation resistance good. The vessel has been fitted with direction finding apparatus & echo sounding device. This vessel is eligible in my opinion for notation. D.F. & ESD

Noted.

For RB:-

DF & E.S.D.

W.T.B.

12/9/34

Total Capacity of Generators 32. Kilowatts.

The amount of Fee ... £ 23 - - : 4.9.34

Travelling Expenses (if any) £ : : 8/9/34

W. T. Badger

Surveyor to Lloyd's Register of Shipping.

Committee's Minute

Assigned



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