

REPORT ON ELECTRICAL EQUIPMENT.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

JAN 31 1939

Received at London Office

Date of writing Report 11 Sept 1938 When handed in at Local Office 13th Apr 1938 Port of Danzig
 No. in Survey held at Danzig Date, First Survey 22nd April Last Survey 25th January 1939
 Reg. Book. continued attendance till 12.9.38.
 on the Steel Twin Screw Drag Suction Hopper Dredger "Fu Shing" Tons { Gross
 Net
 Built at Danzig By whom built F. Schichau G.m.b.H. Yard No. 1400 When built 1938
 Owners Whangpoo Conservancy Board Port belonging to Shanghai
 Electric Light Installation fitted by F. Schichau G.m.b.H. Contract No. 1400 When fitted 1938
 Is the Vessel fitted for carrying Petroleum in bulk no

System of Distribution 2 Wire parallel system with constant pressure
 Pressure of supply for Lighting 220 Volt volts, Heating ✓ volts, Power 220 Volt/440 Volt volts.
 Direct or Alternating Current, Lighting direct current Power direct current
 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 yes, 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 yes
 Have certificates for generators under 100 kw. been supplied and approved 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 on raised platform in aft eng. room on starboard, 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 no unprotected woodwork
 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 on second platform above generator platform
 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 no unprotected woodwork 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 as approved, 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 For each Generator a circuit breaker with overload and reversed current trip and with a single pole equalizer switch. For each outgoing circuit a fuse on each pole and a double pole switch to be fitted
 Are turbine driven generators fitted with emergency trip switch as per rule to be fitted Are cupboards or compartments containing switchboards composed of fire-resisting material or lined with approved material fire res. material Instruments on main switchboard 8 ammeters 3
 voltmeters ✓ synchronising device for paralleling purposes. For compound machines is the ammeter connected on the opposite pole to equaliser connection yes
 Earth Testing, state what means are provided at the main switchboard for indicating the state of the insulation of the system a Voltmeter with 2 scales Volts & Ohms 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. yes are all fuses labelled as per rule 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 lead are the cables insulated and protected as per Tables IV, V, X, XI, XII or XIII of the Rules yes

If the cables are insulated otherwise than as per Rule, are they of an approved type yes **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 laid under machines or floorplates no if so, are they adequately protected ✓

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

Support and Protection of Cables, state how the cables are supported and protected by clamps and sheet iron casings

If cables are run in wood casings, are the casings and caps secured by screws yes, are the cap screws of brass yes, are the cables run in separate grooves yes 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. yes

Joints in Cables, state if any, and how made, insulated, and protected no joints

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 20 holding down bolts of 1/4" diam for each = 6000 mm². Diesel Genem. 6 bolts of 1" diam = 3000 mm² are their connections made as per Rule yes

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 ✓ are they ventilated as per Rule ✓

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 no are any fittings placed in spaces where inflammable or explosive dust or gases are liable to be present, if so, how are they protected no how are the cables led ✓

where are the controlling switches situated ✓ are all fittings suitably ventilated ✓, 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 ✓, are air heaters constructed and fitted as per Rule ✓

Searchlight Lamps, No. of 1 whether fixed or portable fixed, are their fittings as per Rule yes

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 as far as possible 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 no unprotected woodwork 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 yes have certificates for all motors for essential services been supplied and approved yes **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 ✓ are all fuses of the filled 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 flameproof type approved for use in dangerous spaces ✓ **Spare Gear,** if the vessel is for open sea service have spares been supplied as per Rule yes are they suitably stored in dry situations yes

PARTICULARS OF GENERATING PLANT.										
DESCRIPTION OF GENERATOR.	No. of	RATED AT				DRIVEN BY	WHERE DRIVEN BY AN INTERNAL COMBUSTION ENGINE.			
		Kilowatts.	Volts.	Amperes.	Revs. per Min.		Fuel Used.	Flash Point of Fuel.		
MAIN	2	225	230	978	1500	Turbines				
AUXILIARY	1	25	230	65.2	1000	Diesel Engine	Diesel Oil	250° F.		
EMERGENCY						PLEASE SEE MANCHESTER RECORD V. 95A.				
ROTARY TRANSFORMER	1	132	220/440	670	1500					
GENERATOR, LIGHTING AND HEATING CONDUCTORS.										
DESCRIPTION.	No. per Pole.	Total Nominal Area per Pole Sq. Ins.	COMPOSITION OF STRAND.		TOTAL MAXIMUM CURRENT. AMPERES.		Approximate Length. (Lead and Return.)	Insulated with	HOW PROTECTED.	
			No.	Diameter.	In Circuit.	Rule.				
MAIN GENERATOR	3	120V	91	2.37	978	1182	20	rubber	Lead covered	
EQUALISER CONNECTIONS	3	120V	91	2.37			10		NOT REQUIRED	
AUXILIARY GENERATOR	1	35	19	1.53	65.2	77.5	30		NOT REQUIRED	
EMERGENCY GENERATOR										
ROTARY TRANSFORMER	1	500	91	2.65	670	804	20V		NOT REQUIRED	
ENGINE ROOM	1	150	61	1.77	260	280	30		NOT REQUIRED	
BOILER ROOM	1	10	19	0.82	32	38	40		NOT REQUIRED	
AUXILIARY SWITCHBOARDS									240° F.	
Pumping Eng. Room	1	10	19	0.82	32	38	20V		NOT REQUIRED	
Wash Room	1	6	19	0.64	26	30	80	rubber	NOT REQUIRED	
Work shop	1	6	19	0.64	29	30	250		NOT REQUIRED	
ACCOMMODATION POOP	1	10	19	1.04	43	49	250		NOT REQUIRED	
Upper deck	1	16	19	1.04	40	49	200		NOT REQUIRED	
Fore castle deck	1	4	19	0.52	14	22	250		NOT REQUIRED	
Operation room	1	4	19	0.52	12	22	230		NOT REQUIRED	
WIRELESS	1	16	19	1.04		49	250		NOT REQUIRED	
SEARCHLIGHT	1	16	19	1.04	40	49	250		NOT REQUIRED	
MASTHEAD LIGHT	1	15	1	1.38	1	9	200		NOT REQUIRED	
SIDE LIGHTS	1	15	1	1.38	1	9	80		NOT REQUIRED	
COMPASS LIGHTS	1	15	1	1.38	1	9	10		NOT REQUIRED	
POOP LIGHTS	1	15	1	1.38	1	9	20V		NOT REQUIRED	
CARGO LIGHTS									NOT REQUIRED	
HEATERS									NOT REQUIRED	
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	2	1	2.5	1	178	12	15	40	rubber	Lead covered and
CIRC. FRESH WATER PUMPS	2	1	2.5	1	178	9.5	15	40		NOT REQUIRED
AIR COMPRESSOR										
FRESH WATER PUMP										
ENGINE TURNING GEAR										
ENGINE REVERSING GEAR										
LUBRICATING OIL PUMPS										
OIL FUEL TRANSFER PUMP										
WINDLASS	1	1	70	27	155	100	154	140		NOT REQUIRED
WINCHES, FORWARD	1	1	50	19	483	119	119	120		NOT REQUIRED
WINCHES, AFT	2	1	150	61	177	184	280	120		NOT REQUIRED
Coal Winches	2	1	10	19	0.82	98	38	200		NOT REQUIRED
STEERING GEAR										
(a) MOTOR GENERATOR	1	1	50	19	183	119	119	180		NOT REQUIRED
(b) MAIN MOTOR	1	1	80	19	183	84	119	40		NOT REQUIRED
WORKSHOP MOTOR	1	1	4	19	0.52	19	22	80		NOT REQUIRED
VENTILATING FANS										
Stoker Motors	4	1	10	19	0.82	25	38	80		NOT REQUIRED
Capstans	4	1	50	19	183	119	119	50		NOT REQUIRED
Forced draught fans	2	1	120	61	183	134	177	120		NOT REQUIRED
Induced	2	1	50	19	183	100	100	100		NOT REQUIRED
Suction ladder hoisting										
Winch	1	1	150	61	177	260	280	150		NOT REQUIRED
Flushing Pump	1	2	80V	91	2.37	780/585	788	240		NOT REQUIRED

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