

# REPORT ON ELECTRIC FITTINGS.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

MAY 10 1938

Received at London Office

Date of writing Report 7<sup>th</sup> April 1938 When handed in at Local Office 8<sup>th</sup> April 1938 Port of Hongkong

No. in Survey held at Hongkong Date, First Survey 23<sup>rd</sup> Dec. 1937 Last Survey 4<sup>th</sup> April 1938  
Reg. Book. (Number of Visits 15)

on the Steel Twin Screw River Steamer "LIWO" Tons { Gross 707.28  
Net 341.78

Built at Hongkong By whom built H. K. W. Dock Co. Ltd Yard No. 778 When built 1938

Owners The Indo China Steam Navigation Co. Port belonging to Hongkong.

Electric Light Installation fitted by The Hongkong & Whampoa Dock Co. Ltd Contract No. ✓ When fitted 1938

Is the Vessel fitted for carrying Petroleum in bulk No

System of Distribution Two wire, direct current ✓

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 No, 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 Starboard side of engine room, Bottom platform

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 Starboard side of engine room, Bottom 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 Same compartment

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 ✓

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 ✓

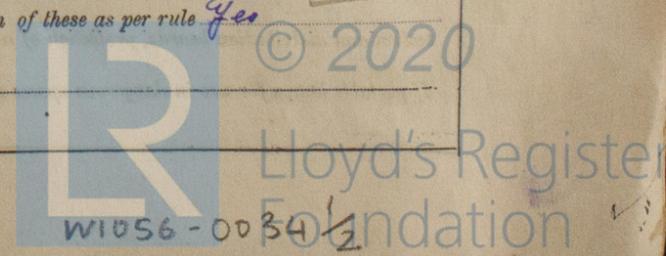
Main Switchgear, description of switchgear for each generator and each outgoing circuit, and arrangement of equalizer switches 100 amps. D.P.D.T switches + fuses. D.P. switches + fuses. ✓

Instruments on main switchboard Two ammeters Two 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 Two earth lamps provided, one for each pole. ✓

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

**Fall of Pressure,** state maximum between bus bars and any point of the installation under maximum load 1.1 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 on perforated iron plating, secured by brass clips + screws. Protected in piping where necessary.

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,** 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 Switchboard frame 0.0225"  
Bedplate + frame of generator 0.0225". Motor + Switch gear frames 0.0045"  
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 Yes

**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, Wheel House, has each navigation lamp an automatic indicator as per Rule Visual + visual signal

**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 Wire guards, 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 Yes, where are the controlling switches situated Yes

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

**Are Lamps,** other than searchlight lamps, No. of Yes, are their live parts insulated from the frame or case Yes, 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 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 Not near, if not of this type, state distance of the combustible material horizontally or vertically above the motors Yes and 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 None, Steel Mast.

**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 Yes

If portable lamps for use in dangerous spaces are supplied, are they of a type approved by the Home Office 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	9	110	82	800	Steam Engine		
AUXILIARY	1	7.9	116	68	1000	Oil Engine	Diesel oil above 150° F.	
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	0.07592	19	.072	82	97	40	Rubber	L.C. + Armoured
EQUALISER CONNECTIONS									
AUXILIARY GENERATOR	1	0.06	19	.064	68	83	48	"	"
EMERGENCY GENERATOR									
ROTARY TRANSFORMER MOTOR GENERATOR									
ENGINE ROOM	1	0.00455	7	.029	14	18.2	50'	"	"
BOILER ROOM	1	0.00299	3	.036	5.5	12	50'	"	"
AUXILIARY SWITCHBOARDS									
ACCOMMODATION									
Bridge Deck	1	0.02214	7	.064	31.0	46	100'	Rubber	Lead Covered
Upper "	1	0.02299	3	.036	10.0	12	80'	"	"
Main "	1	0.02299	3	.036	6.4	12	70'	"	"
Forecastle	1	0.02299	3	.036	1.1	12	70'	"	"
WIRELESS	1	0.02299	3	.036	2.3	12	240'	"	"
SEARCHLIGHT	1	0.02299	3	.036	0.4	12	60'	"	L.C. + Armoured
MASTHEAD LIGHT	2	0.02299	3	.036	5.0	12	2.0	"	Lead Covered
SIDE LIGHTS	1	0.02299	3	.036	0.4	12	40'	"	"
COMPASS LIGHTS	1	0.02299	3	.036	0.4	12	250'	"	"
POOP LIGHTS	2	0.02299	3	.036	0.4	12	50'	"	"
CARGO LIGHTS	2	0.02299	3	.036	0.4	12	150'	"	L.C. + Armoured
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	1	1	0.00455	7	.029	14	18.2	60'	Rubber	L.C. + Armoured.
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										
Frigidaire	1	1	0.00299	3	.036	4.3	12	140'	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.

THE HONGKONG & WHAMPOA DOCK Co., Ltd.

*Hood*  
 CHIEF MANAGER

Electrical Engineers.

Date 7-4-38

COMPASSES.

Distance between electric generators or motors and standard compass 56 ft.

Distance between electric generators or motors and steering compass 50 ft.

The nearest cables to the compasses are as follows:—

A cable carrying .2 Ampères <sup>Compass</sup> *light* feet from standard compass. <sup>Compass</sup> *light* feet from steering compass.

A cable carrying .2 Ampères ✓ feet from standard compass. 6 feet from steering compass.

A cable carrying ✓ Ampères ✓ 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 *any* course in the case of the standard compass, and *nil* degrees on *any* course in the case of the steering compass.

THE HONGKONG & WHAMPOA DOCK Co., Ltd.

*Hood*  
 CHIEF MANAGER

Builder's Signature.

Date 7-4-38

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. *This electric installation has been*)

*efficiently fitted on board in accordance with the Rules + approved plans and the material + workmanship is good.*

*On completion the installation was megger tested + tried under full load conditions + found satisfactory.*

*maker's test certificate for main generator herewith.* ✓

*See Manchester Report N° 8972 for auxiliary generator.* ✓

*No maker's test certificate supplied for the 1.5 H.P. motor driving small*

*Rotary Sanitary Pump. Motor N° D-22568 made by J. Scott + Co. Belfast.*

*Noted  
 J.Y.  
 13/5/38.*

Total Capacity of Generators 16.9 Kilowatts.

The amount of Fee ... £32 = ~~£~~ 523 : <sup>When applied for,</sup> *5<sup>th</sup> April 1938.*

Travelling Expenses (if any) £ 8 : 30 : <sup>When received,</sup> *23.6.1938*

*J. Morrison*  
 Surveyor to Lloyd's Register of Shipping.

Committee's Minute THE 17 MAY 1938

Assigned

*See Hky J.E. 8049*

2m.3.31.—Transfer  
 The Surveys are requested not to write on or below the space for Committee's Minute.



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