

REPORT ON ELECTRIC FITTINGS.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

Received at London Office

Date of writing Report *7th Nov.* 19*25* When handed in at Local Office *10* Port of *Nobe*

No. in Survey held at *Osaka* Date, First Survey *8th JUNE* Last Survey *2nd Nov.* 19*25*
 Reg. Book. (Number of Visits...*10*.....)

on the *Steel Single Screw Steamer ITIVO MARU* Tons { Gross *4273.5*
 Net *2658.80*

Built at *Osaka Sakurayama* By whom built *Osaka Iron Works.* Yard No. *1056* When built *1925*

Owners *Osaka Iron Works Ltd* Port belonging to *Takasago.*

Electric Light Installation fitted by *Osaka Iron Works Ltd* Contract No. *1056* When fitted *1925.*

System of Distribution *Two Wire*

Pressure of supply for Lighting *100* volts, Heating volts, Power *100* volts.

Direct or Alternating Current, Lighting *Direct and Alternating* Power *direct current*

If alternating current system, state frequency of periods per second *60*

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. *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 and clearly marked *Yes*, are they so spaced or shielded that they cannot be accidentally earthed, or short circuited *Yes* Are the lubricating arrangements of the generators as per Rule *Yes*

Position of Generators *Lower 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 *None* and *None*, are the generators protected from mechanical injury and damage from water, steam or oil *Guards fitted*

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 *Near generator*

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 *None* and *None*

are they constructed wholly of durable, incombustible non-absorbent materials *Yes, Marble*, 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 *Yes*, and is the frame effectively earthed *Yes, metal to metal connections*

Are the following fittings as per Rule, viz. :- spacing or shielding of live parts *Yes*, accessibility of all parts *Yes*, absence of fuses on back of board *Yes*, proportion of omnibus bars *ample*, 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 *Two main switches for 6 K.W. dynamo & 5K.V.A transformer + one change over switch for same. Three feeder switches for Wireless, lighting, & power. Five lightning switches for Navigation, Cargo lights, (2) Machy. Space, & Crew Space.*

Instruments on main switchboard *1* ammeters *2* 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 lamp connected in series by key to each pole & earth.*

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 *both* 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 *Not more than 3 Volts.*

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 *Yes, in Sub Alternator to switch board & motor & from S.B. to feed, etc. & Kuebler Air pumps motor only.*

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 *clipped to decks & longitudinal beams in holds etc. & in 7 ft. iron pipes in Bil. & engine rooms.*

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 VI *Yes*

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

Joints in Cables, state if any, and how made, insulated, and protected *Porcelain junction boxes & caps*

Watertight Glands and Deck Tubes, are all cables passing through decks and watertight bulkheads provided with deck tubes or watertight glands *Yes (wort iron pipes on deck)*

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 *at main switch board .053 sq"*

are their connections made as per Rule *Yes*

Alternative Lighting, are the groups of lights in the propelling machinery space arranged as per Rule *Controlled direct from Sw. board*

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*

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 *None*

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 *None*

where are the controlling switches situated *Yes*

Searchlight Lamps, No. of *none*, whether fixed or portable *Yes*, are their fittings as per Rule *Yes*

Arc 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 axis 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 *flame proof* 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 as per Rule *Yes*

Lightning Conductors, where lightning conductors are required, are these fitted as per Rule *none fitted*

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.	Ampères.	Revs. per Min.		Fuel Used.	Flash Point of Fuel.
MAIN ...	1	6	100	60	500	Single Vert. Steam eng.		
AUXILIARY ...								
EMERGENCY ...								
ROTARY STATIC TRANSFORMER	1	5KVA.	100	50		Reduced from Turbo Generator line.		

LIGHTING AND HEATING CONDUCTORS.

Ref. No.	DESCRIPTION.	No. of Conductors.	Effective Area of each Conductor. Sq. Ins.	COMPOSITION OF STRAND.		Total Maximum Current. Ampères.	Approximate Length. (Lead and Return.) Feet.	Insulated with	HOW PROTECTED.
				No.	Diameter.				
32	MAIN GENERATOR...	1	0.051	40	.04"	60	12	Rubber	Lead covered & Armoured
	AUXILIARY GENERATOR								
	EMERGENCY GENERATOR								
33	STATIC TRANSFORMER...	6	0.083	30	.04	50	10	"	"
	AUXILIARY SWITCHBOARDS								
	ENGINE ROOM ...	1	.0056	7	.032	11.4	40	"	"
	BOILER ROOM ...	2	.002	1	.051	2.2	100	"	"
	CREW SPACE	1	.0056	7	.032	3.4	370	"	"
	FORE CABINS	1	"	"	"	6.0	220	"	"
	AFT "	1	"	"	"	5.8	180	"	"
	BRANCH WIRE IN CABINS		.002	1	.051	2-1.6		"	Lead covered
	" " " MACH'S SPACE		"	1	.051	"		"	" " in W.I. Pipe
	WIRELESS ...	1	.045	35	.04	40	210	Rubber	Lead covered & Armoured
	SEARCHLIGHT ...								
	MASTHEAD LIGHT...	2	.002	1	.051	1.0	500	"	Do Do Do in W.I. Pipe
	SIDE LIGHTS ...	2	"	1	"	1.0	55	"	"
	COMPASS LIGHTS ...	2	"	1	"	.2	20	"	"
	POOP LIGHTS ...	1	"	1	"	.2	540	"	"
	CARGO LIGHTS ...	2	.0056	7	.032	5.2	300	"	Rubber & tape
	ARC LAMPS ...								
	HEATERS ...								

MOTOR CONDUCTORS.

Ref. No.	DESCRIPTION.	No. of Motors.	Effective Area of each Conductor. Sq. Ins.	COMPOSITION OF STRAND.		Total Maximum Current. Ampères.	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 ...								
20	CIRC. SEA WATER PUMPS ...	12/15	.00446	7	.028	8.5	11.0	Rubber	Lead covered & Armoured
22	CIRC. FRESH WATER PUMPS ...	12/15	.00446	7	.028	8.5	8.0	"	" " "
	AIR COMPRESSOR ...	1	.0056	7	.032	9.0	18.0	"	" " "
24	FRESH WATER PUMP FEED ...	12/15	.00446	7	.028	17.4	10.0	"	" " "
	ENGINE TURNING GEAR ...								
	ENGINE REVERSING GEAR ...								
	LUBRICATING OIL PUMPS ...								
	OIL FUEL TRANSFER PUMP ...								
	WINDLASS ...								
	WINCHES, FORWARD ...								
	WINCHES, AFT ...								
	STEERING GEAR ...								
	WORKSHOP MOTOR ...								
	VENTILATING FANS ...								

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.



K. Nagase Electrical Engineers. Date 21-12-25

COMPASSES

Distance between electric generators or motors and standard compass About 95 ft from propelling generator & motor
 Distance between electric generators or motors and steering compass 140 140 ft " " " " " "

The nearest cables to the compasses are as follows:—

A cable carrying	<u>0.2</u>	Ampères	<u>4</u>	feet from standard compass	<u>4</u>	feet from steering compass.
A cable carrying	<u>1.0</u>	Ampères	<u>7</u>	feet from standard compass	<u>7</u>	feet from steering compass.
A cable carrying	<u>5.6</u>	Ampères	<u>7</u>	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 No degrees on all courses in the case of the standard compass, and nil degrees on each course in the case of the steering compass.

A. Gue Builder's Signature. Date 21-12-25

Is this installation a duplicate of a previous case YES If so, state name of vessel S.S. BIYO MARU.

General Remarks (State quality of workmanship, opinions as to class, &c.)

The fitting of the wires are as stated in this report & appear to be in accordance with the rules of this Society. All power & lighting circuits were tried under full load conditions & found satisfactory. All power cable insulation was tested with a 500 volt Megger, including starter & motor, & the resistances = 15 Meg. Ohms for port side & 30 Megohms for starboard side cables. This case is eligible in my opinion for the notation Electric Light & Wires.

Two prints showing arrangement of engine room cables & wiring for electric power installation forwarded herewith.

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

Total Capacity of Generators Small 6 Kilowatts
 " " " TURBO " 1,000 "

The amount of Fee ... £EN 106⁰⁰ : When applied for, 14-11-1925

Travelling Expenses (if any) £ SEE HULL REP : When received, 4-12-25

H.D. Buchanan
 Surveyor to Lloyd's Register of Shipping.

Committee's Minute FRI. 5 FEB 1926

Assigned *Elec Lt*

The Shipowners are requested not to write on or below the space for Committee's Minute.

