

REPORT ON ELECTRIC FITTINGS.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

29 SEP 1928

Received at London Office.....

Date of writing Report **23rd Aug. 1928** When handed in at Local Office **23rd Aug. 1928** Port of **NAGASAKI.**

in Survey held at **NAGASAKI.** Date, First Survey **25th June 28** Last Survey **4th August, 1928.**
(Number of Visits **11**)

on the **Steel Screw Motor Vessel "SHUNTEN MARU"** Tons { Gross **5,623.35**
Net **3,508.**

at **Nagasaki.** By whom built **Mitsubishi Zosen Kaisha** Yard No. **448.** When built **1928, 8mo.**

ers **Yamamoto Shoji Kaisha, Ltd.,** Port belonging to **Fuchu.**

Electric Light Installation fitted by **Mitsubishi Zosen Kaisha, Ltd.,** Contract No. / When fitted **1928.**

System of Distribution **Two wire system.**

Pressure of supply for Lighting **225** volts, Heating / volts, Power **225** volts.

Current or Alternating Current, Lighting **Direct current.** Power **Direct current.**

Alternating current system, state frequency of periods per second /

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.**

they over compounded 5 per cent. **Yes.**, if not compound wound state distance between each generator

are more than one generator is fitted are they arranged to run in parallel **Yes.** (except 3.5 K.W.) is an adjustable regulating resistance fitted in

with each shunt field **Yes.**

all terminals accessible and clearly marked **Yes.**, are they so spaced or shielded that they cannot be accidentally earthed,

short circuited **Yes.** Are the lubricating arrangements of the generators as per Rule **Yes.**

Position of Generators **In engine room on bottom platform.**

the ventilation in way of the generators satisfactory **Yes.**, are they clear of all inflammable material **Yes.**

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.**

their axis of rotation fore and aft **Yes.**

Nothing, are the bedplates and frames of the generating plant efficiently earthed **Yes.** are the prime movers and

in respective generators in metallic contact **Yes.**

Main Switch Boards, where placed **Engine room, 2nd Deck, Starboard side, forward.**

If the generators and main switchboard are not placed in the same compartment, is each generator provided with

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, incombustible 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 connected to one pole

insulated from the slab with mica or mica-ite and the slab similarly insulated from its framework **Yes.**, and is the

effectively earthed **Yes.** 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

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 circuit**

breaker with reverse current relay and double pole single throw knife switch for main genera-

tors, **Single pole overload circuit breaker and double pole knife switches with enclosed fuse**

for **3.5 K.W. generator, double pole knife switch with enclosed fuse for each out going circuit,**

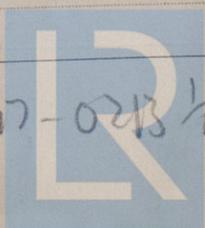
equalizer switch inter-locked with main circuit breaker for parallel running of main generators.

Instruments on main switchboard **5** 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 **By earth lamp.**

Switches, Circuit Breakers and Fusible Cut-outs, do these comply with the requirements of the Rules **Yes.**

Construction and Distribution Boards, is the construction, protection, insulation, material, and position of these as per rule **Yes.**



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Single or Multicore
Insulation of Cables, state type of cables, single or twin 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 **4.5 volts for Lighting. 4.2 volts for Power.**
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 /
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 **Clamped to mild steel bracket or perforated galvanized mild steel plate by metal clips and protected by mild steel plate in cargo space.**
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, 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 **Junction boxes, insulated by mica and protected by metal cover.**
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 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 **There are no earthing connections, except wireless telegraph, which has gross sectional area of 0.00715 square inches.**
, 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.** , 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 **Yes. - protected by strong metal 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 /
, how are the cables led
where are the controlling switches situated /
Searchlight Lamps, No. of / , whether fixed or portable / , are their fittings as per Rule /
Are 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 **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 / , 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 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	3	80	225	356	375	Diesel Engine.	Diesel Oil	Above 150° F.
AUXILIARY	1	3.5	225	15.6	450	Hot bulb engine.	Kerosene.	"
EMERGENCY								
ROTARY TRANSFORMER	1	1 KVA.	100 A.C.	10	3000	1.5 HP. motor.		
	1	1/2 "	100 A.C.	2.5	3000	1/2 HP. motor.		

LIGHTING AND HEATING CONDUCTORS.

Ref. No.	DESCRIPTION.	No. of Conductors.	Effective Area of each Conductor. Sq. Ins.	COMPOSITION OF STRAND.		Total Maximum Current. Amperes.	Approximate Length. (Lead and Return.) Feet.	Insulated with	HOW PROTECTED.
				No.	Diameter.				
	MAIN GENERATOR...								
	AUXILIARY GENERATOR								
	EMERGENCY GENERATOR								
	ROTARY TRANSFORMER...								
	AUXILIARY SWITCHBOARDS								
	ENGINE ROOM								
	BOILER ROOM								
	WIRELESS								
	SEARCHLIGHT								
	MASTHEAD LIGHT...								
	SIDE LIGHTS...								
	COMPASS LIGHTS...								
	POOP LIGHTS								
	CARGO LIGHTS								
	ARC LAMPS								
	HEATERS								

MOTOR CONDUCTORS.

Ref. No.	DESCRIPTION.	No. of Motors.	Effective Area of each Conductor. Sq. Ins.	COMPOSITION OF STRAND.		Total Maximum Current. Amperes.	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								
	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								
	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.

NAGASAKI WORKS, MITSUBISHI ZOSEN KAISHA, LTD.

S. Kawai

GENERAL MANAGER.

Electrical Engineers.

Date *29/8/28*

COMPASSES.

Distance between electric generators or motors and standard compass **32 ft to W.L.T. motor generator.**

Distance between electric generators or motors and steering compass **30 ft to Cargo winch motor.**

The nearest cables to the compasses are as follows:—

A cable carrying **0.1** Ampères **1** feet from standard compass **1** feet from steering compass.

A cable carrying **19** Ampères **32** feet from standard compass **32** 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 **Every.** course in the case of the standard compass, and **Nil.** degrees on **Every.** course in the case of the steering compass.

NAGASAKI WORKS, MITSUBISHI ZOSEN KAISHA, LTD.

S. Kawai

GENERAL MANAGER.

Builder's Signature.

Date *29/8/28*

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 materials and workmanship are good and the installation has been fitted in accordance with the Rules, tested under full working conditions and found satisfactory.**)

Plan sent under separate cover of:— "Electric Wiring Diagram".

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

2579/28

Total Capacity of Generators **243.5** Kilowatts

The amount of Fee ... **¥ 405:20**

When applied for, **14. 8. 28**

Travelling Expenses (if any) £

When received, **30. 10. 28**

George Anderson
 Surveyor to Lloyd's Register of Shipping.

Committee's Minute **TUE. 2 OCT 1928**

Assigned *Elec Light*

Im. 24. — Transfer. (The Surveyors are requested not to write on or below the space for Committee's Minute.)



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Steel Screw Motor Vessel "S H U N T E N M A R U".

LIGHTING AND HEATING CONDUCTORS.

Ref. No.	Description.	No. of Conductors.	Effective Area of each Conductor. Sq.in.	Composition No.	Dia.	Total Max. Current Amperes.	Approximate Length. (L&R) Feet.	Insulated with.	How Protected.
1	No.1 Generator.	2	.605	91	.092	356	66	Rubber	L.C.
2	Equalizer for No.1 Generator.	1	.00701	7	.036	6.33	33	"	"
3	No.2 Generator.	2	.605	91	.092	356	66	"	"
4	Equalizer for No.2 Generator.	1	.00701	7	.036	6.33	33	"	"
5	No.3 Generator.	2	.605	91	.092	356	110	"	"
6	Equalizer for No.3 Generator.	1	.00701	7	.036	6.33	55	"	"
79	No.4 Generator.	2	.00701	7	.036	15.5	130	"	"
		1	.00322	1	.064		65	"	"
50	D 1 distribution board.	2	"	1	"	6.686	92	"	"
51	D 2 " "	2	"	1	"	10.14	72	"	"
52	D 3 " "	2	"	1	"	8.82	32	"	"
53	Main circuit for cabin fan.	2	"	1	"	2.73	92	"	"
54	Submain board.	2	.00701	7	.036	16.53	94	"	"
55	Navigation lamps.	2	.00322	1	.064	13.5	188	"	"
56	Cargo cluster fore U.D.	1	"	1	"	2.18	224	"	"
57	Cargo cluster middle U.D.	2	"	1	"	4.45	340	"	"
58	Cargo cluster of B.D.	2	"	1	"	2.18	228	"	"
59	Cargo cluster of middle U.D.	2	"	1	"	4.45	92	"	"
60	Cargo cluster of aft. U.D.	1	"	1	"	3.27	110	"	"
61	Fore mast lamp.	1	"	1	"	0.27	96	"	L.C. & A.
62	Starboard side lamp.	2	"	1	"	0.27	236	"	L.C.
63	Port side lamp.	2	"	1	"	0.27	200	"	"
64	Main mast lamp.	1	"	1	"	0.27	88	"	L.C. & A.
65	Stern lamp.	1	"	1	"	0.27	71	"	Braided.
66 to 73	Cargo clusters.	1	.0047	168	.006	1.04	90	"	"
75 to 77	"	1	"	"	"	"	"	"	"
74	Cargo lamp.	2	"	168	"	2.27	90	"	"
78	Bus lamp circuit.	2	.00181	1	.048	0.18	18	"	L.C.
80	Battery charging apparatus.	2	"	1	"	0.82	18	"	"
81	Second battery for W.L.T.	2	.00701	7	.036	20	40	"	"

MOTOR CONDUCTORS.

No. Motors.

20	Windlass motor.	1	.119	37	.064	185	36	Rubber	L.C.
10	No.1 Cargo winch motor.	1	.119	37	.064	118	46	"	"
11	No.2 " " "	1	"	"	"	"	"	"	"
12	No.3 " " "	1	"	"	"	"	210	"	"
13	No.4 " " "	1	"	"	"	130	194	"	"
14	No.5 " " "	1	"	"	"	"	182	"	"
15	No.6 " " "	1	"	"	"	118	184	"	"
16	No.7 " " "	1	"	"	"	130	98	"	"
17	No.8 " " "	1	"	"	"	"	126	"	"
18	No.9 " " "	1	"	"	"	118	86	"	"
19	No.10 " " "	1	"	"	"	"	104	"	"
28	Steering motor.	1	.0612	19	"	58.5	645	"	"
21	No.1 Galley cooking fan motor.	1	.00322	1	"	4.58	11	"	"
22	No.2 " " "	1	"	1	"	4.58	11	"	"
24	1/2 KVA motorgenerator.	1	.00701	7	.036	19	19	"	"
25	" " "	1	"	7	"	2.5	19	"	"
		1	.00181	1	.048		19	"	"
26	1 KVA motor generator.	1	.00701	7	.036	8	57	"	"
27	" " "	1	.00181	1	.048		17	"	"
		1	.00701	7	.036	10	19	"	"
48	No.1 Aux. Air Comp. motor.	1	.405	61	.092	285	133	"	"
49	No.2 " " "	1	"	61	"	285	157	"	"
46	No.1 Turbo blower motor.	1	"	"	"	432	32	"	"
47	No.2 " " "	1	"	"	"	432	64	"	"
31	No.1 Jacket cooling pump	1	.119	37	.064	100	56	"	"
39	No.2 " " "	1	"	"	"	"	"	"	"
29	No.1 Piston cooling pump	1	.225	7	"	36.7	67	"	"
37	No.2 " " "	1	"	"	"	"	78	"	"
34	General service pump	1	.119	37	"	109	100	"	"
43	Ballast pump	1	"	"	"	98	110	"	"
42	Bilge pump	1	.0127	7	.048	30	90	"	"
32	No.1 Lub. oil pump motor.	1	"	"	"	31	190	"	"
40	No.2 " " "	1	"	"	"	"	60	"	"
41	Work shop motor.	1	.00701	7	.036	21	100	"	"
33	3.3 KW. Fuel oil transfer pump	1	"	"	"	18	63	"	"
44	1 HP. Fuel oil transfer pump.	1	"	"	"	4.78	100	"	"
36	Fuel oil purifier motor	1	"	"	"	8.7	105	"	"
35	Lub. oil purifier motor.	1	"	"	"	5.9	185	"	"
7	Fore winch circuit.		.405	61	.092		466	"	"
8	Middle " "		"	"	"		520	"	"
9	After " "		"	"	"		520	"	"
23	WL. Tel. circuit.		.127	7	.048	20	142	"	"
30	Circuit to J 1.		.405	61	.092		31	"	"
38	" to J 2.		"	"	"		31	"	"
45	Turbo blower circuit.		"	"	"		88	"	"

(See also Wiring Diagram)