

# REPORT ON ELECTRIC FITTINGS.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

Received at London Office 19 FEB 1934

Date of writing Report 23rd Jan 1934 When handed in at Local Office 23rd Jan. 1934 Port of NAGASAKI.

No. in Survey held at NAGASAKI. Date, First Survey 4th Oct. 33 Last Survey 10th Jan. 1934  
Reg. Book. (Number of Visits 11)

40259 on the Steel Single Screw Motor Vessel "KOYEI MARU". Tons { Gross 6774.  
in Sup. Net 4915.

Built at Nagasaki. By whom built Mitsubishi Zosen Kaisha Yard No. 550 When built 1934

Owners Takachiho Shosen Kabushiki Kaisha. Port belonging to Kobe.

Electric Light Installation fitted by Mitsubishi Zosen Kaisha, Ltd. Nag. Contract No. \_\_\_\_\_ When fitted 1934

Is the Vessel fitted for carrying Petroleum in bulk /

System of Distribution Two wire system.

Pressure of supply for Lighting 220 volts, Heating 220 volts, Power 220 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 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 Yes, 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 In 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 / 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 At forward end of Engine Room.

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

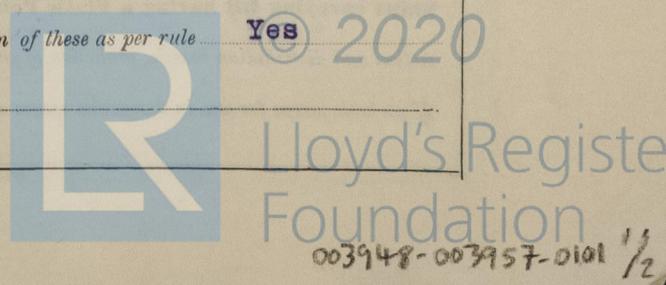
Main Switchgear, description of switchgear for each generator and each outgoing circuit, and arrangement of equalizer switches A double pole circuit breaker with over load trip time-leg device and reverse current trip and single pole equalizer switch interlocked with the circuit breaker as per rule, and a double pole knife switch for each of 90 K.W. Generators: A double pole circuit breaker with overload trip, time-leg device and a double pole switch and fuse for each of out going circuits.

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 lamps.

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

Point 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 or multicore 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 5.82 volts for Power 7.86 volts for Lighting.

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 Yes

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 on perforated or unperforated steel plate by metal clips and protected by metal cover or steel pipes 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 Yes

Joints in Cables, state if any, and how made, insulated, and protected By junction box as per rule.

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 There is no earthing connection except for the wireless telegraph, sectional area of which 0.0225 square inch.

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

has each navigation lamp an automatic indicator as per Rule Yes

Secondary Batteries, are they constructed and fitted as per Rule 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 Lamps in stores are 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 Yes

how are the cables led Yes

where are the controlling switches situated Yes

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

Arc Lamps, other than searchlight lamps, No. of 1, 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 Totally enclosed 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 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 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	3	90	225	400	400	Diesel Engine.	Diesel Oil	Above 150° F.
AUXILIARY								
EMERGENCY								
ROTARY TRANSFORMER	1	2 K.V.A.	250	8	3000	DC Motor 220V.15.5A.	3000 R/M.	
	1	100	2.5	"	"	30V.19A.	3000 R/M.	

GENERATOR, LIGHTING AND HEATING CONDUCTORS. and MOTORS.

Ref.No.	DESCRIPTION.	CONDUCTORS.		COMPOSITION OF STRAND.		TOTAL MAXIMUM CURRENT.		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.			
1.	No.2 Dynamo	1	.74350	91	.103	400	461	152	Rubber	Lead Covered.
2.	Fuse box	1	.01462	7	.052	34.2	37	182	"	" ARMOURED
3.	No.2 F.Oil purifier	1	.00701	"	.036	13.2	24	60	"	"
4.	Lub.oil purifier	1	"	"	"	"	"	"	"	"
5.	Lub.oil shifting P.	1	"	"	"	7.3	"	76	"	"
6.	Fuel oil service P.	1	"	"	"	"	"	"	"	"
7.	Bilge pump	1	.03960	19	.052	50	64	276	"	"
8.	Main Eng.turning M.	1	.02214	7	.064	42	46	272	"	"
9.	Work shop motor.	1	.00701	"	.036	22	24	150	"	"
10.	Bilge & Gen.Sev.P.	1	.06000	19	.064	80	83	128	"	"
11.	Bilge & Ballast P.	1	.11680	37	"	105	130	"	"	"
12.	Fuel oil Transfer P.	1	.02214	7	"	43.8	46	212	"	"
13.	No.2 Lub.oil pump	1	.03960	19	.052	58.5	64	162	"	"
14.	No.1 Jac.& Pis.Cool.P.	1	.24650	37	.093	198	214	208	"	"
15.	No.1 Fuse board	1	.40640	61	"	363	452	346	"	"
16.	Windlass	1	.24650	37	"	220	295	320	"	"
17.	No.2, 3 ton cargo winch.	1	.11680	"	.064	112	160	80	"	"
18.	No.4, 5 ton cargo winch.	1	"	"	"	129	"	"	"	"
19.	No.2 Fuse board	1	.40640	61	.093	361	452	156	"	"
20.	No.5, 5 ton cargo winch.	1	.11680	37	.064	129	160	192	"	"
21.	No.8, 3 ton cargo winch.	1	"	"	"	112	"	210	"	"
22.	No.3 Fuse board	1	.40640	61	.093	363	452	400	"	"
23.	5 ton mooring winch	1	.11680	37	.064	112	160	232	"	"
24.	Wl.Tel.switchboard	1	.02214	7	"	15.5	46	224	"	"
25.	Motor for 2 K.V.A generator	1	.00701	"	.036	"	24	46	"	"
26.	2 KVA.Gen for Wl/T.	1	"	"	"	8	"	"	"	"
27.	Mot.for 1/2 KVA.Gen.	1	"	"	"	19	"	"	"	"
28.	1/2 KVA.Gen for Wl/T.	1	"	"	"	2.5	"	"	"	"
29.	Battery for 1/2 KVA.Gen.	1	.02214	7	.064	19	46	92	"	"

MOTOR CONDUCTORS.

DESCRIPTION.	CONDUCTORS.		COMPOSITION OF STRAND.		TOTAL MAXIMUM CURRENT.		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.				
30	Steering motor	1	.06000	19	.064	51	85	746	Rubber	Lead Covered
31	Ref.Machine (4HP)	1	.01462	7	.052	30	37	120	"	"
32	GENERAL SERVICE I (7HP)	1	.00701	7	.036	17	24	"	"	"
33	No.1 Sub.board	1	"	"	"	15.97	"	196	"	"
34	No.1 Dist.Board	1	"	"	"	10.9	"	10	"	"
35	No.2 SEA WATER PUMPS	1	.00322	1	.064	4.77	12.9	110	"	"
36	No.3 FRESH WATER PUMPS	1	.00701	7	.036	10.77	24	70	"	"
37	Eng.Rm.Cargo lamp	1	.00181	1	.048	2.27	7.4	90	"	"
38	Flex.cord for above	1	.0048	110	.0076	"	13	80	"	Cab-type flex. cord.
39	Bus-bar lamp circuit	1	.00181	1	.048	1.45	7.4	540	"	Lead Covered
40	Battery lamp circuit	1	"	"	"	1.2	"	150	"	"
41	Nav.light main.	1	.00701	7	.036	1	24	312	"	"
42	Fore-mast lamp	1	.00181	1	.048	0.18	7.4	486	"	"
43	Main mast lamp	1	"	1	"	"	"	550	"	"
44	Stern lamp	1	"	1	"	"	"	722	"	"
45	Port side lamp	1	"	1	"	"	"	166	"	"
46	No.2 Sub.board	1	.01462	7	.052	27	37	152	"	"
47	Cargo lamp & circuit	1	.00322	1	.064	4.6	12.9	270	"	"
48	Flex.cord for portable lamp.	1	.0017	40	.0076	0.09	5	25	"	Cab-type flex. cord.
49	" (3) cargo lamp.	1	.0048	110	"	2.27	13	80	"	"
50	" (3) cargo cluster	1	"	"	"	1.09	"	"	"	"
51	Cargo lamp D circuit	1	.00322	1	.064	4.5	12.9	180	"	Lead Covered
52	VIBRATION PUMP	1	"	1	"	4.6	"	340	"	"
53	No.3 Sub.board	1	.02214	7	"	40.5	15.5	196	"	"
54	Elec.heater (1 K.W)	1	.00181	1	.048	4.5	7.4	180	"	"
55	" (2 K.W)	1	.00322	1	.064	9	12.9	146	"	"

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.

Electrical Engineers.

T. Inogaki  
GENERAL MANAGER.  
Date *Jan. 30. 1934*

COMPASSES.

Distance between electric generators or motors and standard compass 20 feet from bracket fan motor

Distance between electric generators or motors and steering compass 12 " " " " "

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 1.51 Ampères 20 feet from standard compass 16 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 and every course in the case of the standard

compass, and Nil degrees on Any and every course in the case of the steering compass.

NAGASAKI WORKS, MITSUBISHI ZOSEN KAISHA, LTD.

Builder's Signature.

T. Inogaki  
GENERAL MANAGER.  
Date *Jan. 30. 1934*

Is this installation a duplicate of a previous case Yes. If so, state name of vessel KOSEI MARU

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

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.

Plans sent under separate cover of:— Wiring diagram. (2 sheets).

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

*20/2/34*

Total Capacity of Generators 270 Kilowatts.

The amount of Fee ... £ 38-5-0 : 18. 1. 34 When applied for.  
Travelling Expenses (if any) £ : : 17. 1. 34 When received.

H.D. Buchanan & T. Kimishu  
Surveyor to Lloyd's Register of Shipping.

Committee's Minute TUE. 20 FEB 1934

Assigned Elec. Light

2m. 8. 31.—Transfer  
The Surveyors are requested not to write on or below the space for Committee's Minute.