

REPORT ON ELECTRIC FITTINGS.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

Received at London Office 13 JUL 1931

Date of writing Report 15-6-1931 When handed in at Local Office 22-6-1931 Port of Kobe.

No. in Survey held at Tama. Date, First Survey 1st May 1931 Last Survey 29th May 1931.
Reg. Book. (Number of Visits 5)

on the Single Screw Motor Vessel "SANTO MARU". Tons {Gross 3234.
Net

Built at Tama. By whom built Mitsui Bussan Kaisha Yard No. 184 When built 1931.

Owners Dairen Kisen Kab. Kaisha Port belonging to Dairen

Electric Light Installation fitted by Mitsui Bussan Kaisha Contract No. 184 When fitted 1931.

System of Distribution Two wire closed circuit.

Pressure of supply for Lighting 220 volts, Heating 220 volts, Power 220 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 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 All on bottom engine room platform, one 60 Kw. on port side, two 60 Kw. on starboard side.

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 bed-plates 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 In engine room, on port sides, near by fore bulkhead.

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. (of bakelite), if semi-insulating material is used, are all conducting parts insulated from the slab with mica or micaite 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. Each Generator

fitted with double pole switch, three pole air circuit breaker with overload and reverse release and equalizer contact suitably constructed as per Rule.

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. 2 lamps + switches.

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.



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Cables: Single, twin, concentric, or multicore. Single Twin are the cables insulated and protected as per Tables IV or V of the Rules. Yes.

Fall of Pressure, state maximum between bus bars and any point of the installation under maximum load. 4.7 volt for winch motor.

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. Supported by brass clips to cable girders and walls, some part in galvanized pipe.

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. Jointed nowhere, except at joint box and Distribution Bd. which is suitably made, insulated and protected 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 bushes

Earthing Connections, state what earthing connections are fitted and their respective sectional areas. 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. A 12 volt, 48 ampere-hour. Secondary battery is set near main switch board. Controlled by a change-over sw.

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

Secondary Batteries, are they constructed and fitted as per Rule. Yes.

Fittings, are all fittings on weather decks, in stokeholds and engine rooms and where 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. Yes

how are the cables led. Yes

where are the controlling switches situated. Yes

Searchlight Lamps, No. of Yes, whether fixed or portable. Yes, 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. Yes, if not of this type, state distance of the combustible material horizontally or vertically above the motors. Yes

Control Gear and Resistances, are the generator field and motor speed regulators, starters and controllers constructed and fitted as per Rule. Yes.

Lighting 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.

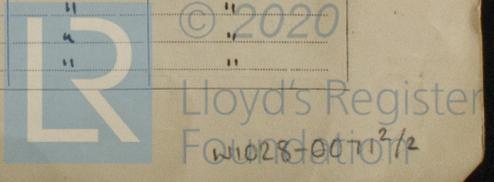
DESCRIPTION OF GENERATOR.	No. of	RATED AT			Revs. per Min.	DRIVEN BY	WHERE DRIVEN BY AN INTERNAL COMBUSTION ENGINE	
		Kilowatts.	Volts.	Amps.			Fuel Used.	Flash Point of Fuel.
MAIN	3	60 each	220	272	400	Diesel Engine	Diesel Oil	above 150°
AUXILIARY								
EMERGENCY								
ROTARY TRANSFORMER								

LIGHTING AND HEATING CONDUCTORS.

Ref. No.	DESCRIPTION.	No. of Conductors.	Effective Area of each Conductor. Sq. Ins.	COMPOSITION OF STRAND.		Total Maximum Current. Amps.	Approximate Length. (Lead and Return.) Feet.	Insulated with	HOW PROTECTED.
				No.	Diameter.				
	MAIN GENERATOR	2	2 x 1527	2 x 150	20	273	160	Rubber	Armoured
	EQUALISER CONNECTIONS	1	0.1527	150	20	127	160	"	"
	AUXILIARY GENERATOR								
	EMERGENCY GENERATOR								
	ROTARY TRANSFORMER								
3	AUXILIARY SWITCHBOARDS	1	0.2036	200	20	166	120	"	"
1	ENGINE ROOM MOTORS (MAIN)	2	0.1120	110	20	250	60	"	"
2	ENGINE ROOM MOTORS (MAIN)	1	0.0153	15	20	36	150	"	"
	ACCOMMODATION								
3	F.O. PURIFIER HEATER	1	0.0611	60	20	82	13	"	"
	L.O. SETTLING TANK HEATER	1	0.0071	7	20	136	16	"	"
	L.O. PURIFIER HEATER	1	0.0611	60	20	54.5	16	"	"
4	F.O. SETTLING TANK HEATER	1	0.0305	30	20	41.0	60	"	"
14	NAVIGATION INDICATOR	1	0.0018	1	18	1.0	300	"	"
13	ENGINE ROOM LIGHT	1	0.0071	7	20	15	77	"	"
11	CABIN LIGHT	1	0.0071	7	20	15	100	"	"
9	WIRELESS	1	0.0153	15	20	22	200	"	"
	SEARCHLIGHT								
	MASTHEAD LIGHT	3 core	0.0018	1	18	0.25	200	"	"
	SIDE LIGHTS	"	"	1	18	"	30	"	"
	COMPASS LIGHTS	1	"	1	18	0.1	20	"	"
	POOP LIGHTS	3 core	"	1	18	0.25	400	"	"
12	CARGO LIGHTS	1	0.0153	15	20	15	400	"	"
	ARC LAMPS								
10	HEATERS FOR BATH	1	0.0611	60	20	77.5	100	"	"

MOTOR CONDUCTORS.

Ref. No.	DESCRIPTION.	No. of Motors.	Effective Area of each Conductor. Sq. Ins.	COMPOSITION OF STRAND.		Total Maximum Current. Amps.	Approximate Length. (Lead and Return.) Feet.	Insulated with	HOW PROTECTED.
				No.	Diameter.				
1	BALLAST PUMP	1	0.0611	60	20	72	60	Rubber	Armoured.
1	BILGES & SANITARY PUMP	1	0.0305	30	20	42	60	"	"
	MAIN BILGE LINE PUMPS								
	GENERAL SERVICE PUMP								
	EMERGENCY BILGE PUMP								
	COOLING PUMP								
1	COMP. COOLING & L.O. PUMP	1	0.0611	60	20	80	30	"	"
	GEN. SEA WATER PUMPS								
	CIRC. FRESH WATER PUMPS								
	AIR COMPRESSOR								
2	FRESH WATER PUMP	1	0.0032	1	16	4.6	10	"	"
2	ENGINE TURNING GEAR	1	0.0071	7	20	13.5	24	"	"
	ENGINE REVERSING GEAR								
	LUBRICATING OIL PUMPS								
1	F.O. TRANSFER & RESERVE LOR	1	0.0611	60	20	60	30	"	"
8	WINDLASS	1	0.1527	150	20	152	360	"	"
7	WINCHES, FORWARD	2	2 x 2036	200	20	416	360	"	"
6	WINCHES, AFT	2	"	"	20	"	400	"	"
5	POOP MAIN ECT. SERRING GEAR	1	0.1120	110	20	138	450	"	"
	(a) POOP WINCH	1	0.0814	80	20	104	55	"	"
	(b) RUBBER (STEERING)	1	0.153	15	20	34	78	"	"
2	WORKSHOP MOTOR	1	0.0032	1	16	9.2	80	"	"
	VENTILATING FANS								
2	EXHAUST BOILER FAN	1	0.0032	1	16	9.2	52	"	"
3	F.O. PURIFIER PUMP	1	0.0032	1	16	2.5	20	"	"
3	F.O. PURIFIER	1	0.0032	1	16	6.0	12	"	"
3	L.O. PURIFIER PUMP	1	0.0032	1	16	1.3	10	"	"
3	L.O. PURIFIER	1	0.0032	1	16	6.0	11	"	"
15	SIREW	1	0.0305	30	20	2.5	500	"	"
16	COOKING RANGE FAN	1	0.0032	1	16	4.6	150	"	"
17	WINCH (EACH)	1	0.0814	80	20	104	40	"	"



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.

E. Maeda, Electrical Engineers. Date 15-6-31

COMPASSES.

Distance between electric generators or motors and standard compass 50 ft from generator.
 Distance between electric generators or motors and steering compass 52 " " "
 The nearest cables to the compasses are as follows:—
 A cable carrying 20 Ampères 8 feet from standard compass 5 feet from steering compass. for motor siren.
 A cable carrying 14 Ampères 16 feet from standard compass 15 feet from steering compass. for wireless motor.
 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 Without electric, adjusted.
 Has the effect of switching on and off circuits, motors and other electro-magnetic apparatus within the vicinity of the compasses been noted No.
 The maximum deviation due to electric currents was found to be ✓ degrees on _____ course in the case of the standard compass, and ✓ degrees on _____ course in the case of the steering compass.

J. Utai Builder's Signature. Date 15-6-31

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 electrical installation)
of this vessel has been installed under special survey in accordance with the Rules and approved plans, the workmanship and material are good and on completion the installation was tested under full working conditions and found to be efficient, and in my opinion, is eligible to have record of "ELECTRIC LIGHT".

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

Elec. Light
RM 19/8/31

Total Capacity of Generators 180 Kilowatts.

The amount of Fee ... ¥ 533,- : 29/6/31 When applied for,
 Travelling Expenses (if any) £ : 23 7/31 When received,
Elc

K. Kishigami Surveyor to Lloyd's Register of Shipping.

Committee's Minute _____
 Assigned *Elc Lt*

Im. 1, 26 - Transfer. (The Surveyors are requested not to write on or below the space for Committee's Minute.)



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