

REPORT ON ELECTRIC FITTINGS.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

12 AUG 1929

Received at London Office

Date of writing Report 11th July 1929 When handed in at Local Office 11th July 1929 Port of Kobe

No. in Survey held at *Yama* Date, First Survey 30.5.29 Last Survey 1st July 1929
Reg. Book. (Number of Visits... 9)

on the *Steel Single Screw motorship "SENSAN MARU"* Tons { Gross Net

Built at *Yama* By whom built *Mitau Bussan Kaisha* Yard No. 160 When built 1929

Owners *Daisen Kisen Kaisha* Port belonging to *Daisen*

Electric Light Installation fitted by *Mitau Bussan Kaisha* Contract No. 160 When fitted 1929

System of Distribution *two wire*

Pressure of supply for Lighting 220, 100 in E.R. 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 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 ** yes*, 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 E.R. Platform*, are they clear of all inflammable material *yes*

is the ventilation in way of the generators satisfactory *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 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 *E.R. for 4 bulk^d p.s.*

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, 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 micanite and the slab similarly insulated from its framework ✓, and is the frame 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 bars *yes*, individual fuses to voltmeter, pilot or earth lamp *yes*, connections of switches *yes*

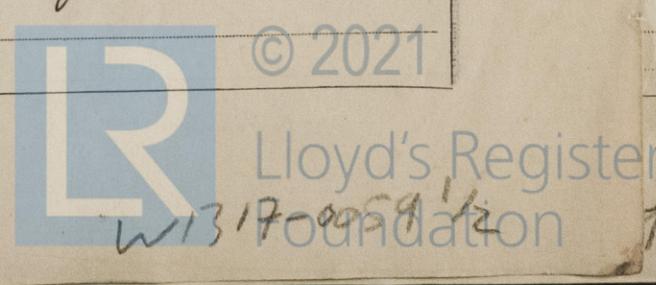
Main Switchgear, description of switchgear for each generator and each outgoing circuit, and arrangement of equalizer switches. *each generator fitted with D.P. Switch + D.P. circuit breaker with overload + reverse current release + suitably connected with equalizer leads as per Rule requirement*

Instruments on main switchboard 5 ammeters 3 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 + switches*

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 *6.6*

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*

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 *brass clips & screws - wire armoured & galvanized piping on deck*

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 VI *Yes*

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

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 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 *-*

are their connections made as per Rule *-*

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 *4 lamps in E.R. are supplied by a storage battery (12 volt 48 amp-hour)*

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~~ and engine room 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 *no*

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* *except motor Winches*

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 *-*

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.	Ampères.	Revs. per Min.		Fuel Used.	Flash Point of Fuel.
MAIN	3	112 (3) 35 (3) 35	220	0.32 (3) 160	310	Diesel Engine	Diesel Oil	above 150° F
AUXILIARY	-							
EMERGENCY	-							
ROTARY TRANSFORMER	1	3	220-100	20-30	1500	5 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.				
1	MAIN GENERATOR	2	.2036	200	20	320	160	rubber	armoured
2	AUXILIARY GENERATOR	1	.2036	"	"	160	200	"	"
2a	EMERGENCY GENERATOR	1	"	"	"	"	"	"	"
	ROTARY TRANSFORMER	1	.0153	15	"	20	20	"	"
	AUXILIARY SWITCHBOARDS								
	ENGINE ROOM								
	BOILER ROOM								
	Navigation Light (main)	1	.0171	7	20	1	200	"	From E.R. to Navig. Lamp Indi. at Deck level
17	WIRELESS	1	.0305	30	20	14	300	"	"
	SEARCHLIGHT								
	MASTHEAD LIGHT	1	.0018	1	18	2	"	"	"
	SIDE LIGHTS	1	"	"	"	"	"	"	"
	MAST HEAD LIGHT	1	"	"	"	"	"	"	"
	POOP LIGHTS	1	"	"	"	"	"	"	"
	CARGO LIGHTS	1	.0187	19	20	15	100	"	"
	HEATERS	1	.2545	250	20	200	80	"	"

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.				
6	BALLAST PUMP	1	.0814	80	20	60	160	rubber	armoured
6	MAIN BILGE LINE PUMPS	1	"	"	"	36	"	"	"
	GEN. SERVICE PUMP								
	EMERGENCY BILGE PUMP								
See 6	SANITARY PUMP	See 6							
4	CIRC. SEA WATER PUMPS	1	.0611	60	20	80	60	"	"
	GEN. BILGE WATER PUMPS								
	AIR COMPRESSOR								
8	FRESH WATER PUMP	1	.0205	30	20	2	200	"	"
8	ENGINE TURNING GEAR	1	.0305	30	20	12	200	"	"
	ENGINE REVERSE GEAR								
	LUBRICATING OIL PUMPS	See 4 & 5							
5	OIL FUEL TRANSFER PUMP	1	.0611	60	20	60	80	"	"
16	LOB. OIL PUMP	1	.1527	150	20	164	300	"	"
	WINDLASS								
15	WINCHES, FORWARD	4	.3155	200, 110	20	240	180	"	"
14	WINCHES, AFT	4	.3155	"	"	"	300	"	"
12	STEERING GEAR	1	.0305	30	20	36	500	"	"
8	WORKSHOP MOTOR	1	"	"	"	8	200	"	"
	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.

E. Maeda Electrical Engineers. Date *1.4.29*

COMPASSES.

Distance between electric ~~generators or~~ motors and standard compass *28 ft (motor system)*
 Distance between electric ~~generators or~~ motors and steering compass *36 ft*

The nearest cables to the compasses are as follows:—

A cable carrying *14* Ampères *16* feet from standard compass *8* feet from steering compass.
 A cable carrying *-* Ampères *-* feet from standard compass *-* 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 *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.

S. Utas
 Builder's Signature. Date *1.4.29*

Is this installation a duplicate of a previous case *Yes* If so, state name of vessel *m/v "TENSAN MARU"*

General Remarks (State quality of workmanship, opinions as to class, &c. *The electrical equipment referred to herein has been installed under special survey. The materials & workmanship employed are good. In my opinion this vessel is entitled to the highest class for her electrical equipment.*

It is submitted that this vessel is eligible for THE RECORD. Elec. Light. JSA. YRM. 13.8.29

Total Capacity of Generators *140* Kilowatts

The amount of Fee ... *¥363* : - : *July 10th 1929* (When applied for)
 Travelling Expenses (if any) £ : : *28.10.29* (When received)

Clive Bell
 Surveyor to Lloyd's Register of Shipping.

Committee's Minute *FRI. 16 AUG 1929*

Assigned *Elec Light*

56,125b.—Transfer. (The Surveyors are requested not to write on or below the space for Committee's Minute.)