

# REPORT ON ELECTRIC FITTINGS.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL) 29 DEC 1930

Received at London Office

Date of writing Report 24-11-30 10 When handed in at Local Office 12-12-30 10 Port of Kobe

No. in Survey held at Osaka Date, First Survey 23-5-30 Last Survey 18-11-30 19  
Reg. Book. (Number of Visits 11)

on the T.M.V "HEIAN MARU" Tons { Gross Net

Built at Osaka By whom built Osaka Iron Works Yard No. 1128 When built 1930

Owners Nippon Yusen Kaisha Port belonging to Tokio

Electric Light Installation fitted by Fusi Denki Seizo K.K. Contract No. 1128 When fitted 1930

System of Distribution Direct current two wire insulated

Pressure of supply for Lighting 225 volts, Heating 225 volts, Power 225 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 ✓

Generators, do they comply with the requirements regarding rating ✓, are they compound wound ✓

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

Where more than one generator is fitted are they arranged to run in parallel ✓, is an adjustable regulating resistance fitted in series with each shunt field ✓

Are all terminals accessible, clearly marked, and furnished with sockets ✓, are they so spaced or shielded that they cannot be accidentally earthed, short circuited, or touched ✓ Are the lubricating arrangements of the generators as per Rule ✓

Position of Generators Two main and one auxiliary generators in engine room. One emergency generator boat deck, is the ventilation in way of the generators satisfactory ✓, are they clear of all inflammable material ✓

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 ✓

are their axes of rotation fore and aft ✓

Earthing, are the beds, laths and frames of the generating plant efficiently earthed ✓ are the prime movers and their respective generators in metallic contact ✓

Main Switch Boards, where placed In 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 ✓, are they protected from mechanical injury and damage from water, steam or oil ✓, 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 ✓, is all insulation of high dielectric strength and of permanently high insulation resistance ✓, 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 ✓ Are the fittings as per Rule regarding: — spacing or shielding of live parts ✓, accessibility of all parts ✓, absence of fuses on back of board ✓, proportion of omnibus bars ✓, individual fuses to voltmeter, pilot or earth lamp ✓, connections of switches ✓

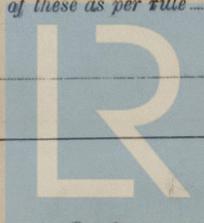
Main Switchgear, description of switchgear for each generator and each outgoing circuit, and arrangement of equalizer switches. Triple pole circuit breaker for each generator and double pole circuit breaker or double pole knife switch with fuses for each outgoing circuit.

Instruments on main switchboard 19 ammeters 5 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 voltmeters read in ohms

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

Joint Boxes Section and Distribution Boards, is the construction, protection, insulation, material, and position of these as per rule ✓



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**Cables:** *Single, twin, concentric, or multicore* <sup>Single, twin, & multicore</sup> are the cables insulated and protected as per Tables IV or V of the Rules *Yes*  
*3.5 Volts at steam lamp*

**Fall of Pressure,** state maximum between bus bars and any point of the installation under maximum load *4.5 " " N°4 Thermotank fan 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 & protected as required by the Rules*

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 *Yes*

**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 *As required by Rules. The sectional area of the earthing conductor is equal to that of the working conductor*, 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 *Emergency supply controlled at emergency switchboard in the emergency room, the generator is driven by paraffin engine*

**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 *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

where are the controlling switches situated *Yes*

**Searchlight Lamps,** No. of *Two*, whether fixed or portable *fixed*, 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 axes of rotation fore and aft *Yes, except a few small motors*

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* 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.	Ampères.	Revs. per Min.		Fuel Used.	Flash Point of Fuel.
MAIN ... ..	3	360	225	1600	290	Trinal engine	Heavy Oil	224°F
AUXILIARY ... ..	1	40	225	178	400	" "	" "	"
EMERGENCY ... ..	1	35	225	156	1200	Paraffin engine	Paraffin	77°F
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. Amperes.	Approximate Length. (Lead and Return.) Feet.	Insulated with	HOW PROTECTED.
				No.	Diameter.				
	MAIN GENERATOR...	5	0.60620	91	0.093"	5 x 384	150	V.I.R	L.A.B
	EQUALISER CONNECTIONS	3	0.60620	91	0.093"	3 x 384	150	"	"
	AUXILIARY GENERATOR	1	0.24650	37	0.093"	214	200	"	"
	EMERGENCY GENERATOR	1	0.19640	37	0.083"	184	30	"	"
	ROTARY TRANSFORMER...								
	AUXILIARY SWITCHBOARDS								
	ENGINE ROOM <i>W. Room</i>	1	0.10090	19	0.083"	118	70	"	"
	BOILER ROOM <i>Eng. Room</i>	1	0.01046	7	0.044"	31	120	"	"
	ACCOMMODATION								
	<i>Night emergency</i>	1	0.06000	19	0.064"	83	60	"	"
	<i>Day emergency</i>	1	0.10090	19	0.083"	118	120	"	"
	<i>Night lighting</i>	1	0.01046	7	0.044"	31	220	"	"
	<i>Day lighting</i>	1	0.10090	19	0.083"	118	160	"	"
		1	0.14780	37	0.072"	152	160	"	"
		1	0.10090	19	0.083"	118	360	"	"
		1	0.06000	19	0.064"	83	400	"	"
	WIRELESS ... ..	1	0.02840	19	0.044"	53	200	"	"
	SEARCHLIGHT ... ..	1	0.00299	3	0.036"	12	120	"	"
	MASTHEAD LIGHT...	1	0.00194	3	0.029"	7.8	500	"	"
	SIDE LIGHTS ... ..	1	"	"	"	"	120	"	"
	COMPASS LIGHTS ... ..	1	"	"	"	"	20	"	"
	POOP LIGHTS								
	CARGO LIGHTS ... ..	1	0.03960	19	0.052"	64	50	"	"
	ARC LAMPS ... ..								
	HEATERS ... ..	2	0.40640	61	0.093"	2 x 288	300	"	"

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 ... ..	1	0.19640	37	0.083"	184	60	V.I.R	L.A.B
	MAIN BILGE LINE PUMPS	1	0.14780	37	0.072"	152	100	"	"
	GENERAL SERVICE PUMP	1	0.19640	37	0.083"	184	80	"	"
	EMERGENCY BILGE PUMP	1	0.07592	19	0.072"	97	300	"	"
	SANITARY PUMP ... ..	2	"	19	0.072"	"	66	"	"
	CIRC. SEA WATER PUMPS	4	0.19640	37	0.083"	184	80	"	"
	CIRC. FRESH WATER PUMPS								
	AIR COMPRESSOR ... ..	1	0.60620	2 x 91	0.093"	2 x 384	200	"	"
	FRESH WATER PUMP ...	2	0.03960	19	0.052"	64	100	"	"
	ENGINE TURNING GEAR	2	"	19	0.052"	64	100	"	"
	ENGINE REVERSING GEAR								
	LUBRICATING OIL PUMPS	4	0.40640	61	0.093"	288	120	"	"
	OIL FUEL TRANSFER PUMP	2	0.06000	19	0.064"	83	100	"	"
	WINDLASS ... ..	1	0.60620	91	0.093"	960	40	"	"
	WINCHES, FORWARD ...	10	0.10090	19	0.083"	199	150	"	"
	WINCHES, AFT ... ..	7	0.10090	19	0.083"	199	150	"	"
	STEERING GEAR—		0.24650	37	0.093"	377	50	"	"
	(a) MOTOR GENERATOR...								
	(b) MAIN MOTOR ... ..	2	0.24650	37	0.093"	214	480	"	"
	WORKSHOP MOTOR ... ..	1	0.02214	7	0.064"	46	40	"	"
	VENTILATING FANS ... ..	3	0.10090	19	0.083"	118	180	"	"

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.

FUSI DENKI SEIZO K. K.

Electrical Engineers.

Date DEC 10 1930

COMPASSES.

Distance between electric generators or motors and standard compass Between fan motor & compass 15'-0"  
 Distance between electric generators or motors and steering compass " " " & steering compass 18'-0"

The nearest cables to the compasses are as follows:—

A cable carrying 64 Amperes 8 feet from standard compass 9 feet from steering compass.

A cable carrying 5 Amperes 8 feet from standard compass 9 feet from steering compass.

A cable carrying 3 Amperes 10 feet from standard compass 5 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.

OSAKA IRON WORKS, LTD.

*[Signature]*

Builder's Signature.

Date

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 materials and workmanship are good and on completion the installation was tested under full working conditions and found to be efficient and eligible in my opinion to have the record of Electric Light.

*[Faint stamp: It is submitted that this vessel is eligible for...]*

Elec. Light

*[Signature]*  
DK 109/4

Total Capacity of Generators \_\_\_\_\_ Kilowatts.

The amount of Fee ... £7604:00 : 21st Nov. 1930 (When applied for,)  
 Travelling Expenses (if any) £ See Hull Rpt. : 10th Dec. 1930 (When received,)

*[Signature: A.D. Morrison]*  
 Surveyor to Lloyd's Register of Shipping.

Committee's Minute TUE. 13 JAN 1931

Assigned Elec. 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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