

# REPORT ON ELECTRIC FITTINGS.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

Received at London Office... 20 JAN 1932

Date of writing Report 14-12-31 19 When handed in at Local Office 13-1-32 19 Port of Kobe

No. in Survey held at Tama Date, First Survey 18-11-31 Last Survey 12-12-31 19  
Reg. Book. (Number of Visits... 7...)

on the M.V. NACHISAN MARU Tons { Gross Net

Built at Tama By whom built Imtani Bunan Kaisha Yard No. 183 When built 1931

Owners Imtani Bunan Kaisha Port belonging to Kobe

Electric Light Installation fitted by Imtani Bunan Kaisha Contract No. 183 When fitted 1931

System of Distribution Direct current two wire distribution 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 One port side and two starboard side, 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

none and none, 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 bearings 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 Port side, fore bulkhead, 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 -

yes

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 - none and none

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 micaite 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

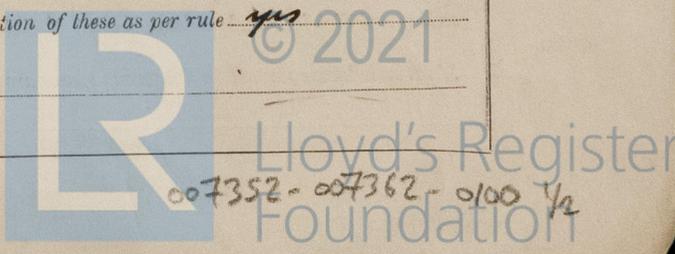
In generator, D.P. switch and D.P. circuit breaker with overload and reverse current trip, mechanically interlocked with equalizing contacts. In outgoing switches, D.P. switch - fuses

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 - an earth lamp with a change over contact for positive & negative busbars is fitted on generator panel

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



Cables: Single, twin, concentric, or multicore 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 *5/8*

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, protected by either steel pipe or armoured cable*

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 *no*. 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 *Ordinary joint box, made certain water tight pattern*

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 *hard wood*

Earthing Connections, state what earthing connections are fitted and their respective sectional areas *In good metallic contact with ample contact area by their respective frames a bulkhead with ship floor*

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 *Twin cell battery fitted in engine room for emergency use in engine room*

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 aloft holds 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 *Watertight portable lamps are used*

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 *no*

where are the controlling switches situated *yes*

Searchlight Lamps, No. of *yes*, whether fixed or portable *yes*, 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, including inboard*

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, fitted with mast, wooden part*

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	70	220	318	400	Diesel Engine	above 150° F	
AUXILIARY								
EMERGENCY					900	Hand starting		
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. Ampères.	Approximate Length. (Lead and Return.) Feet.	Insulated with	HOW PROTECTED.
				No.	Diameter.				
	MAIN GENERATOR	Single	2545	250	SWG 20	318	185	paper	armoured
	EQUALISER CONNECTIONS	"	2086	200	" 20	159	92	rubber	"
	AUXILIARY GENERATOR								
	EMERGENCY GENERATOR								
	ROTARY TRANSFORMER								
	AUXILIARY SWITCHBOARDS	Single	2036	200	" 20	271	130	paper	"
	ENGINE ROOM	"	0071	7	" 20	15	170	rubber	"
	BOILER ROOM								
	ACCOMMODATION								
	Room heater joint box	"	1120	110	" 20	117	220	rubber	"
	Bath " " "	"	1120	110	" 20	127	220	"	"
	Cabin light " "	"	0071	7	" 20	15	220	"	"
	Navigation light	"	0032	1	" 16	1	300	"	"
	12 Volt battery charge	"	0071	7	" 20	6	20	"	"
	WIRELESS	Single	0305	30	SWG 20	25	270	"	"
	SEARCHLIGHT								
	MASTHEAD LIGHT	Twin	0018	1	" 18	0.19	550	"	"
	SIDE LIGHTS	"	0018	1	" 18	0.19	88	"	"
	COMPASS LIGHTS	"	0018	1	" 18	0.05	30	"	"
	POOP LIGHTS	Single	0032	1	" 20	2	480	"	"
	CARGO LIGHTS	"	0305	30	" 20	45	350	"	"
	ARC LAMPS								
	HEATERS								

MOTOR CONDUCTORS.

Ref. No.	DESCRIPTION.	No. of Motors.	Effective Area of each Conductor. Sq. Ins.	COMPOSITION OF STRAND.		Total Maximum Current. Am. ere.	Approxim to Length. (Lead and Return.) Feet.	Insulated with	HOW PROTECTED.
				No.	Diameter.				
	BALLAST PUMP	1	0814	80	SWG 20	88	40	rubber	armoured
	MAIN BILGE, LINE PUMPS	1	0305	30	" 30	42	32	"	"
	GENERAL SERVICE PUMP	1	0153	15	" 20	32	100	"	"
	EMERGENCY BILGE PUMP								
	SANITARY PUMP								
	CIRC. SEA WATER PUMPS								
	CIRC. FRESH WATER PUMPS								
	AIR COMPRESSOR								
	FRESH WATER PUMP	1	0032	1	SWG 16	4.6	96	"	"
	ENGINE TURNING GEAR	1	0071	7	" 20	13.5	120	"	"
	ENGINE REVERSING GEAR								
	LUBRICATING OIL PUMPS	2	1527	150	" 20	140	72	"	"
	OIL FUEL TRANSFER PUMP	1	0153	15	" 20	22	105	"	"
	WINDLASS	1	1527	150	" 20	165	470	"	"
	WINCHES, FORWARD	4	3563	350	" 20	526	350	paper	"
	WINCHES, AFT	5	3563	350	" 20	554	400	"	"
	STEERING GEAR	1	0611	60	" 20	52	540	rubber	"
	(a) MOTOR GENERATOR	1	0305	30	" 20	37	18	"	"
	(b) MAIN MOTOR	1	"	"	"	"	"	"	"
	WORKSHOP MOTOR	1	0032	1	" 16	9.2	56	"	"
	VENTILATING FANS								
	Winches Masthead	2	2036	200	" 20	296	130	paper	"

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 \_\_\_\_\_

COMPASSES.

Distance between electric generators or motors and standard compass *Fifty four feet from which motor*  
 Distance between electric generators or motors and steering compass *fiftyone feet from which motor*  
 The nearest cables to the compasses are as follows:—  
 A cable carrying *455* Amperes *20* feet from standard compass *12* feet from steering compass.  
 A cable carrying \_\_\_\_\_ Amperes \_\_\_\_\_ feet from standard compass \_\_\_\_\_ feet from steering compass.  
 A cable carrying \_\_\_\_\_ Amperes \_\_\_\_\_ 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 \_\_\_\_\_ degrees on \_\_\_\_\_ course in the case of the standard compass, and \_\_\_\_\_ degrees on \_\_\_\_\_ course in the case of the steering compass.

*A. Utas* 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 fitted under Special Survey in accordance with the Rules and approved plans; the materials and workmanship are good. On completion the installation was tested under full working conditions and found to be efficient and reliable, in my opinion, for the use of Electric Light*

*W. C. Light*  
*W. C. Light*  
*3/8/32*

Total Capacity of Generators ~~270~~ *230* Kilowatts.

The amount of Fee ... £ *367.50* : When applied for, *19/32*  
 Travelling Expenses (if any) £ : : When received, *18/3/32*

*A. Morrison*  
 Surveyor to Lloyd's Register of Shipping.

Committee's Minute *FRI. 5 FEB 1932*

Assigned *W. C. Light*

Im. 128.—Transfer. (The Surveyors are requested not to write on or beside the space for Committee's Minute.)