

# REPORT ON ELECTRIC FITTINGS.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

Received at London Office 3 DEC 1934

Date of writing Report 29<sup>th</sup> October 1934 When handed in at Local Office 29/10/1934 Port of YokohamaNo. in Survey held at Uraga Date, First Survey 22<sup>nd</sup> June 1934 Last Survey 24<sup>th</sup> October 1934  
Reg. Book. (Number of Visits 16)81674 on the Single Screw Vessel M/V "NAKO MARU" Tons { Gross 7139  
Net 4272.5

Built at Uraga By whom built Uraga Dock Co. Ltd. Yard No. 388. When built 1934-10.

Owners Nippon Yusen K. K. Port belonging to Tokio

Electric Light Installation fitted by Uraga Dock Co. Ltd. Contract No. / When fitted 1934

Is the Vessel fitted for carrying Petroleum in bulk No

System of Distribution Two wire insulated

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. No, 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 Starboard Side Engine Room bottom platform

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 forward end. Engine Room bottom platform

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

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. For each generator

a double pole circuit Breaker with overload and Reverse current trips and a single pole

equalizer switch. For each outgoing circuit a double pole fuse and switch except for 5 circuits

which have double pole circuit Breakers.

Instruments on main switchboard 8 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 earth indicating

Lamp System

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.



*9 multicore*  
**Cables:** Single, twin, concentric, or multicore *Single, Twin* 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 *8.7 Volts Power 4.5 Volts 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 *metal hangers & clips*  
 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 *ends of cables secured by screws in metal joint boxes*  
**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 *0.11 sq inch for earth lamps*  
 , 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  
**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 *Steel Casings*  
 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 axes of rotation fore and aft *Yes & vertical*  
 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 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 *✓*  
 If portable lamps for use in dangerous spaces are supplied, are they of a type approved by the Home Office *✓*

for lighting purposes in narrow way

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	250	225	1110	375	Diesel Engine	Heavy oil	above 150° F	
AUXILIARY	1	20	225	89	500	do.	do.	do.	
EMERGENCY									
ROTARY TRANSFORMER									

GENERATOR, LIGHTING AND HEATING CONDUCTORS.									
DESCRIPTION.	CONDUCTORS.		COMPOSITION OF STRAND.		TOTAL MAXIMUM CURRENT. AMPERES.		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.			
MAIN GENERATOR	3	22305	91	.103	1110	1383	165	Rubber	Lead covered & braided
EQUALISER CONNECTIONS	2	997	61	.103		664	82	"	"
AUXILIARY GENERATOR	1	1009	19	.083	89	118	216	"	Lead covered, armoured & braided
EMERGENCY GENERATOR									
ROTARY TRANSFORMER									
ENGINE ROOM	1	.06	19	.064	37.5	83	50	"	"
BOILER ROOM									
AUXILIARY SWITCHBOARDS	A	1	4064	61	.093	420	464	228	Paper
	B	1	2465	37	.093	202	343	204	"
	C	1	4985	61	.103	298	332	90	Rubber
	D & E	2	8128	61	.093	1225	1326	300	Paper
	F & G	2	4930	37	.093	902	906	330	"
	H	1	.02214	7	.064	6.2	46	225	Rubber
ACCOMMODATION	Light I.	1	.06	19	.064	48	83	120	"
	II	1	.02214	7	.064	13.5	46	150	"
WIRELESS	1	.06	19	.064	60	86	240	"	"
SEARCHLIGHT	1	.00322	1	.064	273	12.9	600	"	"
MASTHEAD LIGHT	1	.00322	1	.064	273	12.9	100	"	"
SIDE LIGHTS	1	.00322	1	.064	.0455	12.9	40	"	"
COMPASS LIGHTS	1	.00322	1	.064	273	12.9	660	"	"
POOP LIGHTS	1	.00322	1	.064	273	12.9	660	"	"
CARGO LIGHTS	1	.06	19	.064	53	83	120	"	"
ARC LAMPS	1	.00322	1	.064	9.1	12.9	45	"	"
HEATERS	1	.00322	1	.064	9.1	12.9	45	"	"

MOTOR CONDUCTORS.										
DESCRIPTION.	No. of Motors.	CONDUCTORS.		COMPOSITION OF STRAND.		TOTAL MAXIMUM CURRENT. AMPERES.		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.			
BALLAST PUMP	1	1	1009	19	.083	102	118	150	Rubber	Lead covered, armoured & braided
MAIN BILGE LINE PUMPS	1	1	1009	19	.083	102	118	100	"	"
GENERAL SERVICE PUMP	1	1	1009	19	.083	102	118	100	"	"
EMERGENCY BILGE PUMP	1	1	.02214	7	.064	31	46	70	"	"
SANITARY PUMP	2	2	997	61	.103	650	664	100	"	"
CIRC. SEA WATER PUMPS										
CIRC. FRESH WATER PUMPS										
AIR COMPRESSOR	1	1	.00701	7	.036	14.8	24	60	"	"
FRESH WATER PUMP	1	1	.06	19	.064	60	92	150	"	"
ENGINE TURNING GEAR	1	1	.06	19	.064	60	92	150	"	"
ENGINE REVERSING GEAR	1	1	.06	19	.064	60	92	150	"	"
LUBRICATING OIL PUMPS	2	1	1009	19	.083	99	118	130	"	"
OIL FUEL TRANSFER PUMP	2	1	1009	19	.083	78	118	105	"	"
WINDLASS (Boat System)	1	1	4985	61	.103	307	332	160	Rubber	"
WINCHES, FORWARD	4	1	1964	37	.083	215	204	60	"	"
	6	1	1009	19	.083	129	124	60	"	"
WINCHES, AFT	3	1	1964	37	.083	215	204	60	"	"
	6	1	1009	19	.083	129	124	60	"	"
STEERING GEAR—										
(a) MOTOR GENERATOR	1	1	1009	19	.083	88	124	60	"	"
(b) MAIN MOTOR	1	1	1069	19	.083	59	124	600	"	"
WORKSHOP MOTOR	1	1	.00322	1	.064	12	12.9	130	"	"
VENTILATING FANS	2	1	.02214	7	.064	28	46	200	"	"
Turbo Blower	2	3	25377	127	.013	1450	1536	300	"	"
Cargo oil pump	1	1	1009	19	.083	102	118	150	"	"
CO2 Compressor	2	1	1964	37	.083	120	184	60	"	"
Bowie pump	2	1	.00701	7	.036	14.5	24	30	"	"
Refrig cooling water pump	2	1	.00701	7	.036	16.5	24	30	"	"
No. 1 Cargo Hold Fan	1	1	.00701	7	.036	13	24	350	"	"
No. 2	1	1	.02214	7	.064	20	46	240	"	"



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.

*H. Fujisaki* Electrical Engineers.

Date *Nov 1<sup>st</sup> 1934*

#### COMPASSES.

Distance between electric generators or motors and standard compass *60 feet from nearest motor*

Distance between electric generators or motors and steering compass *54*

The nearest cables to the compasses are as follows:—

A cable carrying *4* Ampères *20* feet from standard compass *21* feet from steering compass.

A cable carrying *4* Ampères *14* feet from standard compass *7.2* feet from steering compass.

A cable carrying *3.0* Ampères *17* feet from standard compass *10* 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 *0* degrees on *✓* course in the case of the standard compass, and *0* degrees on *✓* course in the case of the steering compass.

*[Signature]*

Builder's Signature.

Date *Nov 1<sup>st</sup> 1934*

Is this installation a duplicate of a previous case *yes*. If so, state name of vessel *NAGARA MARU*

General Remarks (State quality of workmanship, opinions as to class, &c.) *The electric appliances and installation has been fitted on board under Special Survey in accordance with the Rules and approved plans. Material and Workmanship good. After completion of fitting out all tried under full Working conditions. Insulation Resistance tests as per Rules carried out satisfactorily. This Vessel's electric installation is eligible in my opinion to have the record of +L. M. C 10.34 in the Register Book*

*Noted*

*L.H.*

*4/12/34*

*[Signature]*

Total Capacity of Generators *770* Kilowatts.

The amount of Fee ... £ *63-9-0* : When applied for, *5-11-34*

Travelling Expenses (if any) £ *✓* : When received, *5.1.35* *ND* *7/1*

*G. H. Macdonald*  
Surveyor to Lloyd's Register of Shipping.

Committee's Minute *FRI. 7 DEC 1934*

Assigned *Mr J. E. Mackay*



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