

Rpt. 13.

No. 548

# REPORT ON ELECTRICAL EQUIPMENT.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

Received at London Office

12 MAR 1952

Date of writing Report Oct. 23rd 1951 When handed in at Local Office 19 Port of KobeNo. in Survey held at Aioi, Japan Date, First Survey 24-7-51 Last Survey 11-10-1951  
Reg. Book. (No. of Visits)on the Steel Twin Steam Ship "TONAN MARU"Built at Osaka Japan By whom built Osaka Iron Works, Ltd Yard No.      Tons { Gross 19320.38  
Net 13211.40Owners Nippon Suisan K.K. Port belonging to Tokyo When built 1938-1040Installation fitted by Marine Shipbuilding & Engineering Co., Ltd Aioi When fitted 10-1951Is vessel equipped for carrying Petroleum in bulk Yes Is vessel equipped with D. F. Yes E. S. D. Yes Gy. C. Yes Sub. Sig. No Radar YesPlans, have they been submitted and approved yes System of Distribution 2 wire insulation Voltage of Lighting 220Heating 220 Power 220 D. C. or A. C., Lighting D.C. Power D.C. If A. C. state frequency     Prime Movers, has the governing been found as per Rule when full load is thrown on and off yes Are turbine emergency governors fitted with a trip switch      Generators, are they compound wound yes, and level compounded under working conditions yesif not compound wound state distance between generators      and from switchboard     . Are the generators arranged to run in parallel yes, are shunt field regulators provided yes. Is the compound winding connected to the negative or positive pole yes, negativeHave machines over 100 kw. been inspected by the Surveyors during manufacture and testing yes. Have certificates of test for machines under 100 kw. been supplied yes and the results found as per Rule yesPosition of Generators Forward in engine roomis the ventilation in way of generators satisfactory yes are they clear of inflammable material and protected from mechanical injury and damage from water, steam and oil yes Switchboards, where are main switchboards placed Forward center in engine roomare they in accessible positions, free from inflammable gases and acid fumes and protected from mechanical injury and damage from water, steam and oil yes, what insulation is used for the panels Synthetic material, if of synthetic insulating material is it an Approved Type yes, if of semi-insulating material (slate or marble) are all conducting parts insulated therefrom as per Rule     Is the construction as per Rule, including locking of screws and nuts yes. Description of Main Switchgear for each generator and arrangement of equaliser switches 3 pole (Center pole for equaliser) circuit breaker with overload and reverse current trip.and the switch and fuse gear (or circuit breakers) for each outgoing circuit Current rating of outgoing circuits, 200A and over; 2 pole circuit breaker with overload trip. 200A under; Fuse on each pole and 3 poles linked switch.Are compartments containing switchboards composed of fire-resisting material or lined as per Rule yes Instruments on main switchboard 12ammeters 5 voltmeters      synchronising devices. For compound machines in parallel are the ammeters and reversed current protection devices connected on the pole opposite to the equaliser connection yes Earth Testing, state means provided Earth indicating lamps.Switches, Circuit Breakers and Fuses, are they as per Rule yes, are the fuses an Approved Type yesmake of fuses Fuji Electric Mfg. Co., Ltd. are all fuses labelled yes. If circuit breakers are provided for the generators, at what overload do they operate 50% and at what current do the reversed current protective devices operate 15%Joint Boxes, Section Boards and Distribution Boards, is the construction as per Rule yes { But, Fuse maker Utsunomiya Electric Mfg. Co., Ltd. Type of fuse Cellulose fuse with carrier.Cables, are they insulated and protected as per Rule yes, if otherwise than as per Rule are they of an Approved Type     state maximum fall of pressure between bus bars and any point under maximum load 10.83 volts, are the ends of all cables having a sectional area of 0.01 square inch and above provided with soldering sockets yes Are all paper insulated and varnished cambric insulated cables sealed at the ends yesAre all the cable runs in accessible positions, not exposed to drip or accumulation of water or oil, high temperatures or risk of mechanical damage yes, are any cables laid under machines or floorplates yes, if so, are they adequately protected yesAre cables in machinery spaces, galleys, laundries, etc., lead covered yes or run in conduit yes or of the "HR" type      State how the cables are supported or protected In machinery space and whale oil factory: Cables are protected by strong sheet iron plates. On Deck; Cables are protected by galvanized steel pipes.Are all lead sheaths, armouring and conduits effectually bonded and earthed yes Are all cables passing through decks and watertight bulkheads provided with deck tubes or watertight glands yes, where unarmoured cables pass through beams, etc., are the holes effectively bushed yes Refrigerated chambers, are the cables and fittings as per Rule yes



Alternative Lighting, are the groups of lights in the engine and boiler rooms arranged as per Rule yes. Emergency Supply, state position

Navigation Lamps, are they separately wired yes controlled by separate double pole switches and fuses yes. Are the switches and fuses in a position accessible only to the officers on watch yes, is an automatic indicator fitted yes. Is an alternative supply provided yes.

Secondary Batteries, are they constructed and fitted as per Rule yes, are they adequately ventilated yes. state battery capacity in ampere hours 24 V - 120 AH - 2 sets

Fittings, are all fittings on weather decks, in stokeholds and engine rooms and wherever exposed to drip or condensed moisture, weatherproof yes.

Are any fittings installed where readily combustible materials or inflammable or explosive dust or gases are likely to be present no. if so, how are they protected -.

and where are the controlling switches fitted -. Are all fittings suitably ventilated yes.

Searchlight Lamps, No. of -, whether fixed or portable -, are they of the carbon arc or of the filament type -.

Heating and Cooking, is the general construction as per Rule yes, are the frames effectually earthed yes, are heaters in the accommodation of the convection type yes. Motors, are all motors constructed and installed as per Rule and placed in well-ventilated compartments in which inflammable gases cannot accumulate and protected from damage from water, steam and oil yes.

Are motors coupled to oil fuel transfer and pressure pumps capable of being stopped from a position accessible in the event of fire in the pump compartment yes. Have motors of 100 BHP and over been inspected by the Surveyors during manufacture and testing -.

Have certificates of test for motors under 100 BHP intended for essential sea services been supplied and the results found as per Rule yes.

Control Gear and Resistances, and they constructed and fitted as per Rule yes. Lightning Conductors, where required are they fitted as per Rule -.

Ships carrying Oil having a Flash Point less than 150° F. Have all the special requirements of the Rules for such ships been complied with -, are all fuses of an Approved Cartridge Type -, make of fuse -. Are the fittings for pump

rooms, tween deck spaces, etc., in accordance with the special requirements for such ships -. Are the cables lead covered as per Rule -.

E. S. D., if fitted state maker Nippon Denki K.K. location of transmitter middle pump room and receiver chart room.

Spare Gear, if the vessel is for open sea service have spares been provided as per Rule and suitably stored in dry situations yes.

Insulation Tests, has the insulation resistance of all circuits and apparatus been tested and found satisfactory yes.

#### PARTICULARS OF GENERATING PLANT.

DESCRIPTION OF GENERATOR.	No. of	MAKER.	RATED AT				PRIME MOVER.	
			Kilowatts per Generator.	Volts.	Amperes.	Rev. per Min.	TYPE.	MAKER.
MAIN	3	Mitsubishi Elct. Co., Ltd.	400	230	1740	400	Diesel	Niigata Iron Works, Ltd.
	1	"	200	230	870	400	Diesel	Niigata Iron Works, Ltd.
EMERGENCY ROTARY TRANSFORMER								

#### GENERATOR CABLES.

DESCRIPTION.	KILOWATTS.	CONDUCTORS.		MAXIMUM CURRENT IN AMPERES.		APPROX. LENGTH (lead plus return feet).	INSULATION.	PROTECTIVE COVERING.
		No. in Parallel per Pole.	Sectional Area or No. and Dia. of Strands. Sq. ins. or Sq. mm.	In the Circuit.	Rule.			
MAIN GENERATOR	400	4	0.5	1740	2088	105	Varnished Cambric	Lead sheathed & armoured
" " EQUALISER		2	0.5				"	"
Port service generator	200	2	0.5	870	1044	105	"	"
EMERGENCY GENERATOR								
ROTARY TRANSFORMER: MOTOR								
" " GENERATOR								

#### MAIN DISTRIBUTION CABLES (to Section Boards, Distribution Fuse Boards, etc.).

DESCRIPTION.								
No. 4 Sub-Switchboard (Eng. room power)	2	0.5	969	1044	300	Varnished Cambric	Lead sheathed & armoured	
No. 5 " (Boiler room power)	2	0.25	614	662	130	"	"	
No. 6 " (Factory S.S. power)	3	0.5	1414	1566	320	"	"	
No. 7 " (Factory P.S. power)	3	0.5	1393	1566	320	"	"	
No. 8 " (Ref. Mach. power)	2	0.25	474	662	990	"	"	
No. 9 " (Aft accom. power)	1	0.2	171	286	270	"	"	
No. 10 " (Fore accom. power)	1	0.2	140	286	900	"	"	
Shore connection Box	1	0.4	400	448	260	"	"	

#### LIGHTING, HEATING, WIRELESS, NAVIGATION LIGHTS, ETC., CABLES.

DESCRIPTION.	CONDUCTORS.		MAXIMUM CURRENT IN AMPERES.		APPROX. LENGTH (lead plus return feet).	INSULATION.	PROTECTIVE COVERING.
	No. in Parallel per Pole.	Sectional Area or No. and Dia. of Strands. Sq. ins. or Sq. mm.	In the Circuit.	Rule.			
Navigation light	1	0.003	0.91	7	1100	Rubber	Lead sheathed & armoured
Wireless telegraph	1	0.2	64	133	1070	"	"
Flying bridge light	1	0.0225	2.0	33	160	"	"
Upper bridge light	1	0.01	8.8	22	170	"	"
Lower bridge light	1	0.01	13.8	22	100	"	"
File deck light	1	0.01	19.5	22	65	"	"
Upper deck light (Fore.)	1	0.0225	26.8	33	7	"	"
Store deck light	1	0.01	17.5	22	50	"	"
Fore cargo light	1	0.01	9.0	22	65	"	"
Upper deck light (Aft P.S.)	1	0.01	12	22	25	"	"
" (Aft S.S.)	1	0.01	18	22	130	"	"
Upper cabin deck (P.S.)	1	0.01	11.8	22	13	"	"
" (S.S.)	1	0.01	11.3	22	120	"	"
Lower cabin deck (P.S.)	1	0.01	5.3	22	25	"	"
" (S.S.)	1	0.01	5.5	22	150	"	"
Aft cargo light	1	0.0225	21.7	33	150	"	"
Engine room light (P.S.)	1	0.0225	29.9	33	7	"	"
" (S.S.)	1	0.0225	28.6	33	70	"	"
Boiler room light	1	0.0225	19.3	33	70	"	"
Factory lights	1	0.0225	21	33	330	"	"
"	1	0.01	16.5	22	14	"	"
"	1	0.01	21.1	22	70	"	"
"	1	0.01	14.7	22	140	"	"
"	1	0.01	20.0	22	70	"	"
"	1	0.01	18.2	22	330	"	"
"	1	0.01	16.3	22	130	"	"
"	1	0.01	12.2	22	70	"	"
"	1	0.01	13.7	22	200	"	"

#### MOTOR CABLES.

ALL IMPORTANT MOTORS TO BE ENUMERATED.		No.	B.H.P.						
Steering motor	2	35	1	0.1	135	185	460	Varnished Cambric	Lead sheathed and armoured
Lub. oil pump motor	2	40	1	0.15	160	238	100	"	"
Lub. oil purifier	2	25	1	0.007	11	17	150	Rubber	"
G.S. pump	1	25	1	0.15	188	238	100	Varnished Cambric	"
Bilge pump	1	50	1	0.15	192	238	52	"	"
Fresh water pump	2	5	1	0.0225	21	33	84	Rubber	"
Turning motor	2	5	1	0.0145	21	25	160	"	"
Bilge Ballast pump	1	40	1	0.15	155	238	40	Varnished Cambric	"
Boiler fan	4	35	1	0.1	135	185	120	"	"
Fuel oil pump	3	5	1	0.0225	21.8	33	170	Rubber	"
F.O. & L.O. transp. pumps	2	2.5	1	0.0045	8.9	11	50	"	"
F.O. purifier	1	2.5	1	0.007	11	17	40	"	"
Boiler oil transp. pump	1	12	1	0.06	49	60	70	"	"
Sanitary pump	2	7	1	0.04	28.5	46	50	"	"
Air compressor	1	40	1	0.06	97	130	150	Varnished Cambric	"
Eng. room vent. fan	4	10	1	0.06	41	60	130	Rubber	"
Heavy oil transp. pump	1	15	1	0.06	58	60	70	"	"
Ballast pump	1	15	1	0.06	58	60	70	"	"
Fresh water pump	1	10	1	0.06	40.6	60	70	"	"
Bilge pump	1	10	1	0.06	40.6	60	70	"	"
Kuerner Boiler	14	20	1	0.06	77	130	200	Varnished Cambric	"
Kuerner Separator	2	15	1	0.06	58	130	100	"	"
Hartman Boiler	4	20	1	0.06	77	130	200	"	"
Hartman Charging Drum	8	3	1	0.01	13	22	170	Rubber	"
Factory Vent. fan	6	5	1	0.0225	21	33	120	"	"
Cocker	1	10	1	0.06	44	130	100	Varnished Cambric	"
Meat cutter	1	4.5	1	0.0225	19	33	110	Rubber	"
Micronizer	1	5	1	0.0225	20.8	33	110	"	"
Ref. machine compressor	2	25	1	0.06	100	130	65	Varnished Cambric	"
" brine pump	2	7	1	0.04	29.5	46	65	Rubber	"
" cooling water p.p.	2	3	1	0.007	13.8	17	65	"	"
Vitamin Purifier	5	3	1	0.01	12.5	22	80	"	"
Whale oil purifier	14	5	1	0.0225	21	33	75	"	"
3rd deck Vent. fan	5	1	1	0.0045	5	11	70	"	"



The Electrical Equipment is installed in accordance with the approved plans and the requirements of the Rules.

All Insulated Conductors are guaranteed to have been tested at the maker's works as specified in the Rules.

The foregoing is a correct description.

*M. Yoshikawa*  
THE MARIMA SHIPBUILDING AND  
ENGINEERING COMPANY, LTD.

Electrical Contractors.

Date 20-10-51

COMPASSES.

Have the compasses been adjusted under working conditions *yes*

*M. Yoshikawa*  
THE MARIMA SHIPBUILDING AND  
ENGINEERING COMPANY, LTD.

Builder's Signature.

Date 20-10-51

Have the foregoing descriptions and schedules been verified and found correct *yes*

Is this installation a duplicate of a previous case *NO* If so, state name of vessel *-*

Plans. Are approved plans forwarded herewith *-* If not, state date of approval *27-7-51*

Certificates. Are certificates of test for motors engaged on essential sea services and generators forwarded herewith *yes*

General Remarks. (State quality of workmanship, whether insulation tests, etc., have been made, opinions as to class, etc.)

*The Electrical Installation of this vessel has been constructed under Special Survey in accordance with the Rules, approved plans and Secretaries letters.*

*The materials and workmanship are sound and good.*

*The Generators, motors etc. have been examined under full load working condition to Rules' requirements and found satisfactory.*

Total Capacity of Generators *1400* Kilowatts.

The amount of Fee ... £ *444718* : { When applied for, 19  
When received, 19  
Travelling Expenses (if any) £ : : {

*S. Burns & Redman*  
Surveyor to Lloyd's Register of Shipping.

Committee's Minute

Assigned

MADE AND PRINTED AT KOBÉ.  
(The Surveyors are requested not to write on or below the space for Committee's Minute.)



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