

# REPORT ON ELECTRICAL EQUIPMENT.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

Received at London Office 11 JUN 1951

Date of writing Report Jan. 25th 1951 When handed in at Local Office 19 Port of Kobe

No. in Survey held at Aioi, Japan. Date, First Survey Sep. 13th Last Survey Dec. 23th 1951  
 g. Book. (No. of Visits 12)

on the Steel Single Screw Steam Ship "NICHIEI MARU" Tons { Gross 11806.07T  
 Net 8550.57T

Built at Aioi Japan By whom built Harima Shipbuilding Works, Ltd. Yard No. 453 When built Dec. 21, 1950.  
 Owners Nito Shosen Co., Ltd. Port belonging to Tokyo Japan

Installation fitted by Harima Shipbuilding Works, Ltd. When fitted Dec. 21, 1950.

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 No

Plans, have they been submitted and approved Yes System of Distribution Two-wire Insulated Voltage of Lighting 110

Heating 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 Yes Generators, are they compound wound Yes, and level compounded under working conditions Yes,

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 Negative

Have 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 Yes

Position of Generators Fore starboard side in engine floor

Is 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

Fore centre, switchboard platform in engine room

Are 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 insulating 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 For 180kw Main Generator: 3 pole (Center pole for equalizer) circuit breaker with overload and reverse-current trips, 1000A 3-pole (center-pole for equalizer) disconnecting switch. Fore 40kw Generator: 250A 2-pole circuit breaker with overload trips.

And the switch and fuse gear (or circuit breakers) for each outgoing circuit

Current rating of outgoing circuit, 200A and above: 2-pole circuit breaker with overload trips. " below 200A : a fuse on each pole & 2-pole linked switch

Are the compartments containing switchboards composed of fire-resisting material or lined as per Rule Yes Instruments on main switchboard 1500A x 2 300A x 1  
 800A x 1 200A x 1  
 450A x 2  
 400A x 2  
 millimeters 300V x 4 voltmeters 150V x 2 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. & megger tester

Switches, Circuit Breakers and Fuses, are they as per Rule Yes, are the fuses an Approved Type Yes

Make of fuses Fuji Electric Mfg. Co. Ltd. all fuses labelled Yes If circuit breakers are provided for the generators, at what overload do they operate 50% over (1470A) and at what current do the reversed current protective devices operate 117A

Joint Boxes, Section Boards and Distribution Boards, is the construction as per Rule Yes

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 2.35V, 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 Yes Are 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 Yes Are cables in machinery spaces, galleys, laundries, etc., lead covered Yes or run in conduit Yes

of the "HR" type ----- State how the cables are supported or protected

In machinery space; cable protect by strong sheet-iron plating or hanger.

Fore and aft gangways; steel plating.

On deck ; 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 (by lead bushings) Refrigerated chambers, are the cables and fittings as per Rule



Alternative Lighting, are the groups of lights in the engine and boiler rooms arranged as per Rule **Yes**. Emergency Supply, state position **24v-240A.H Batteries-2sets in battery room on boat deck, Charge & discharge panel in w**

Navigation Lamps, are they separately wired **Yes** controlled by separate double pole switches and fuses **Yes**. Are the switches and fuses 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.

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

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 accommodation of the convection type. ----- 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 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 **None**. Ships carrying Oil having a Flash Point less than 150° F. Have all the special requirements of the Rules for such ships complied with **Yes**, are all fuses of an Approved Cartridge Type **Yes**, make of fuse **Fuji-Electric Mfg. Co. Ltd.** fittings for power rooms, tween deck spaces, etc., in accordance with the special requirements for such ships **Yes**. Are the cables lead covered as per Rule **Yes**

E. S. D., if fitted state maker **Tokyo instrument Mfg. Co. Ltd.** of transmitter **Engine 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				TYPE.	PRIME MOVER.
			Kilowatts per Generator.	Volts.	Amperes.	Revs. per Min.		
MAIN	2	Mitsubishi Electric Mfg. Co. Ltd. Nagasaki Works.	180	230	784	1800	Horizontal single reduction turbine	
Port service	1	Mitsubishi Electric Mfg. Co. Ltd. Nagasaki Works.	40	230	174	600	85HP Diesel HATHUDOKI SEIZO	
EMERGENCY ROTARY TRANSFORMER	M 2	"	38HP	220	149	1500	Mitsubishi Electric Ltd., Nagasaki	
	G "	"	25 k.w.	115	217	"	"	

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	180	2	61/0.103"	980	1044	166	Varnished cambric	Lead covered & armored
" EQUALISER		1	"		522	83	"	"
Port service Generator	40	1	37/0.083"	174	286	116	Varnished cambric	Lead covered & armored
EMERGENCY GENERATOR	38HP	1	37/0.083"	149	238	65.7	Varnished cambric	Lead covered & armored
ROTARY TRANSFORMER: MOTOR	25 k.w.	1	37/0.093"	217	331	65.7	"	"
" GENERATOR								

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

DESCRIPTION.	No. in Parallel per Pole.	Sectional Area or No. and Dia. of Strands. Sq. ins. or Sq. mm.	In the Circuit.	Rule.	APPROX. LENGTH (lead plus return feet).	INSULATION.	PROTECTIVE COVERING.
Midship power (sec. Board...P1')	1	19/0.064"	10.9	58	543	Rubber	Lead covered & armored
Poop " ( " ...P1)	1	"	29.2	58	80	"	"
Ref. Machine ( " ...P3)	1	"	47	58	216	Varnished cambric	"
Eng. Room Vent. fan ( " ...P4)	1	"	71.7	130	34	"	"
Boiler fuel oil pump ( " P9)	1	"	43	58	232	Rubber	"
Generator cooling W. pump	1	19/0.052"	33.2	46	100	"	"
Hot air drier, Test panel ( " P6)	1	"	18.8	46	140	Varnished cambric	"
Evaporator pump ( " P7)	1	"	29.7	331	250	"	"
Boiler draft fan ( " P8)	1	37/0.093"	297	331	250	"	"
Accommodation fan ( " P2)	1	7/0.044"	13.6	22	86	Rubber	"

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.			
From Main Switchboard							
To Navigation Fuseboard	1	7/0.029"	1.82	11	726	Rubber	Lead covered & Armored
To Midship Lighting (Sec. II board)	1	37/0.072"	69.6	110	692	"	"
To Poop Lighting	1	19/0.064"	39.5	60	146	"	"
To aft upper deck Lighting	1	19/0.052"	36.6	46	100	"	"
To Engine room Lighting	1	19/0.064"	56.4	60	34	"	"
To Boiler room Lighting	1	7/0.064"	23.1	33	330	"	"
To Cargo Light (Sec. II board)	1	37/0.072"	58.9	110	100	"	"
To Cabin fan ( " )	1	7/0.064"	22.2	33	100	"	"
To wireless	1	37/0.083"	83	133	660	"	"
To Naviging instruments (Gyro, Echo-sounder, Rader, etc.)	1	37/0.072"	46.4	110	594	"	"
To Battery charging panel	1	37/0.072"	52	110	660	"	"
To Testing switch board	1	7/0.064"	20	33	100	Varnished Cambric	"
To Shore connection box	1	37/0.072"	200	238	166	"	"
note: From fuse board							
To Navigation light	1	2-core 3/0.036"	0.36	5		Rubber	Lead covered & armoured
To lamp (Eng. & Boiler Rm.)	1	1-core "	"	"		"	"
" (Store, weather dk.)	1	1-core "	"	"		"	Lead covered
" (in accomodation)	1	3/0.036"	"	"		"	"
To Cabin fan	1	"	"	"		"	"

MOTOR CABLES.

ALL IMPORTANT MOTORS TO BE ENUMERATED.	No.	B.H.P.	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.			
Steering Motor	2	20	1	37/0.093"	79.5	331	296	Varnished combric	Lead covered & armoured
Oil pump for main turbine	35	1	1	19/0.083"	134	185	184	"	"
Alge & Ballast Pump Motor	1	35	1	"	133	"	184	"	"
Alge pump Motor	1	30	1	"	114	"	190	"	"
General service pump Motor	1	25	1	19/0.063"	99	130	112	"	"
Miller draft fan	3	25	1	"	"	"	40-1132-1	"	"
Condensate pump	2	12	1	"	47	60	106	Rubber	"
Oil transfer pump	1	12	1	"	"	"	120	"	"
Welding machine Motor	1	8	1	"	30	"	100	"	"
Generator	1	4kw							
Sanitary pump Motor	1	7HP	1	19/0.052"	29.4	46	112	Rubber	Lead covered & armoured
Engine turning Motor	1	7HP	1	"	28	46	178-1	"	"
Eng. Room Vent. fan (Suction)	6HP	1	1	"	25	"	218-1	"	"
" (Exhaust)	5HP	1	1	7/0.064"	21.7	33	184	"	"
Boiler fuel oil pump Motor	2	5HP	1	"	21.5	"	184	"	"
Fresh Water pump	1	5HP	1	"	22.3	"	184	"	"
Air Compressor	1	5HP	1	"	21.7	"	92	"	"
Ref. Machine (Compressor)	2	5HP	1	"	21	"	26	"	"
" (cooling W. pump)	1	1HP	1	7/0.029"	5	11	166	"	"
Universal lathe	1	3HP	1	7/0.044"	13	22	100	"	"
Evaporator pump	1	2HP	1	7/0.036"	9.4	17	26	"	"
Oil purifier	1	2HP	1	"	9	46	232	"	"
Oil filter	1	2HP	1	"	9	46	284	"	"
Filter tube cleaner	1	2HP	1	19/0.052"	18	46	284	"	"
Oil W. pump for Diesel Gen.	1	1HP	1	7/0.029"	4.6	11	66	"	"
Accommodation fan Motor	2	1HP	1	"	4.4	"	165	"	"
"	2	1HP	1	"	2.4	"	99	"	"
Fresh W. pump for midship	1	1HP	1	"	4.6	"	132	"	"
Wiley oil burner	2	1HP	1	2-core	"	"	230	"	"
Refrigerating box	1	1/3HP	1	3/0.029"	1.8	7	46	"	"
Hot air drier	1	1/8HP	1	7/0.029"	8.6	11	232-1	"	"
"	1	1/8HP	1	"	"	"	8-1	"	"

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.

*J. Parake*

Electrical Contractors.

Date 24th Feb. '51

COMPASSES.

Have the compasses been adjusted under working conditions Yes

*J. Parake*

Builder's Signature.

Date 24th Feb. '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 No If not, state date of approval Nov. 2th 1950

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 Secretary's letters.*

*The material and workmanship were found sound and good. The generators and motors etc have been examined under full load working condition to Rules' requirements and found satisfactory.*

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

Total Capacity of Generators 400 Kilowatts.

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

*Sturrie*  
Surveyor to Lloyd's Register of Shipping.

FR' 24 AUG 1951

Committee's Minute

Assigned *See F.E. mch. rph*



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