

Rpt. 13.

No. 205

REPORT ON ELECTRICAL EQUIPMENT.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

Received at London Office **25 AUG 1953**

Date of writing Report 19 When handed in at Local Office 19 Port of Shimonoseki

No. in Survey held at Nagasaki Date, First Survey 12th May 1952 Last Survey 27th February 1953
Reg. Book. (No. of Visits 20)

on the Twin Screw motor vessel "ARITA MARU" Tons Gross 2655.50
Net 4287.40

Built at Nagasaki By whom built Mitsubishi Shipbuilding & Engineering Co. Ltd. Yard No. 1430 When built 1953 2 mo.

Owners Nippon Yusen Kaisha Port belonging to Tokyo

Installation fitted by Nagasaki M.K.S. Mitsubishi Shipbuilding & Engineering Co. Ltd. When fitted 1953 2 mo.

Is vessel equipped for carrying Petroleum in bulk No. Is vessel equipped with D.F. Yes E.S.D. Yes Gy.C. Yes Sub.Sig. No Radar Yes

Plans, have they been submitted and approved Yes System of Distribution 2 wire with D.C. Voltage of Lighting 220

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 - Generators, are they compound wound Yes, and level compounded under working conditions Yes, if 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 pole 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 1 set - Starboard side, 2 sets Port side fore and aft, On engine room flat
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 Forward centre on engine room flat

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 Phenolic resin and micaite, 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 215 kW generator: 1300 Amp 2-pole trip free air circuit breaker with reverse current trip and equalizer links. For 40 kW generator: 250 amp 2-pole trip free air circuit breaker

and the switch and fuse gear (or circuit breakers) for each outgoing circuit For feeder circuit rated over 200 Amp: 2-pole trip free air circuit breaker. For feeder circuit rated 200 Amp and under: 2 pole Knife switch and 6K type fuse on each pole.

Are compartments containing switchboards composed of fire-resisting material or lined as per Rule Yes Instruments on main switchboard 9 ammeters 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 2-10 watt tungsten filament indicating lamps and megger tester.

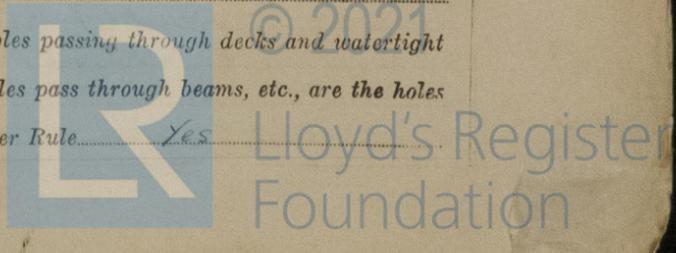
Switches, Circuit Breakers and Fuses, are they as per Rule Yes, are the fuses an Approved Type Yes make of fuses Mitsubishi Electric Mfg Co., are all fuses labelled Yes If circuit breakers are provided for the generators, at what overload do they operate 25%, and at what current do the reversed current protective devices operate 125 A

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 1.0 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 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 - or of the "HR" type - State how the cables are supported or protected Group of cable are supported on metallic hanger and a backed by perforated plate in engine room etc. Each cable is supported by brass clip and protected by guard box in cargo space.

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 effectually bushed Yes Refrigerated chambers, are the cables and fittings as per Rule Yes

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Alternative Lighting, are the groups of lights in the engine and boiler rooms arranged as per Rule Yes Emergency Supply, state position None

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 2-24V 200A for lighting and internal communication, 1-32V 200A, 2-30V 200A, 2-15 Ah 10A, 19R Radios.

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 2 whether fixed or portable Fixed are they of the carbon arc or of the filament type Filament

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 — 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 Yes 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, are they constructed and fitted as per Rule Yes Lightning Conductors, where required are they fitted as per Rule Yes 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 Electric Co. location of transmitter France 120-121 and receiver France 120-121

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.	Ampères.	Revs. per Min.	TYPE.	MAKER.
MAIN	3	Mitsubishi Electric Mfg. Co.	245	230	1,065	375	Heavy oil engine	Mitsubishi Shipbuilding Engineering Co.
AUXILIARY EMERGENCY ROTARY TRANSFORMER	1	Mitsubishi Electric Mfg. Co.	40	230	174	600	Heavy oil engine	Niigata Iron Works
	2	Nippon Elec. Industry Co.	15 kVA	115	130	1800	DC Motor	

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 of No. and Dia. of Strands. Sq. ins. or sq. mm.	In the Circuit.	Rule.			
MAIN GENERATOR	245	2	4/0.093	1,065	605	56	Varnished cambric	Lead sheathed and armoured
" " EQUALISER		1	4/0.093	500	605	28	ditto	ditto
AUXILIARY EMERGENCY GENERATOR	40	1	37/0.083	174	286	60	ditto	ditto
ROTARY TRANSFORMER: MOTOR	25	1	ditto	80	286	52	ditto	ditto
" " GENERATOR	15 kVA	1	ditto	130	286	52	ditto	ditto

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

DESCRIPTION.	No. in Parallel per Pole.	Sectional Area of No. and Dia. of Strands. Sq. ins. or sq. mm.	In the Circuit.	Rule.	APPROX. LENGTH (lead plus return feet).	INSULATION.	PROTECTIVE COVERING.
No. 1 Distribution Panel	1	6/0.103	340	522	55	Varnished cambric	Lead sheathed and armoured
No. 2 " "	2	6/0.103	490	522	90.4	ditto	ditto
No. 3 " "	1	4/0.093	404	605	127	ditto	ditto
No. 4 " "	1	6/0.103	320	522	70	ditto	ditto
Parallel circuit for gully power etc.	1	19/0.064	775	130	35	ditto	ditto
" " cargo care system	1	37/0.083	1732	286	60	ditto	ditto
" " workshop machine	1	19/0.064	30	60	62	Rubber	Lead sheathed and braided
" " silbering unit	1	19/0.064	257	60	30	ditto	ditto
" " refrigerating machine	1	6/0.103	329	522	41	Varnished cambric	Lead sheathed and armoured
" " F.O. service pump etc.	1	19/0.064	445	130	62	ditto	Lead sheathed and braided
" " L.O. purifier	1	19/0.083	150.8	185	62	ditto	ditto
" " F.O. pump etc.	1	19/0.064	50	130	60	ditto	ditto
" " Engine room vent fan	1	19/0.064	672	130	24	ditto	Lead sheathed and armoured

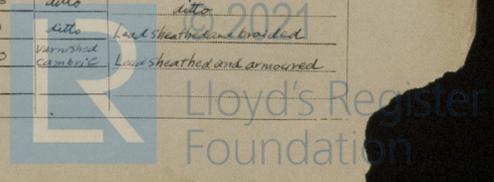
LIGHTING, HEATING, WIRELESS, NAVIGATION LIGHTS, ETC., CABLES.

DESCRIPTION.	CONDUCTORS.		MAXIMUM CURRENT IN AMPERES.		APPROX. LENGTH (lead plus return feet).	INSULATION.	PROTECTIVE COVERING.
	No. in Parallel per Pole.	Sectional Area of No. and Dia. of Strands. Sq. ins. or sq. mm.	In the Circuit.	Rule.			
1.75 Kw. heater & 1.2 Kw. Heater	1	7/0.036	135	17	118	Rubber	Lead sheathed and braided
1.2 Kw. Heater & 550 W Electric Iron	1	7/0.036	105	17	122	ditto	ditto
Navigation light	1	7/0.064	0.7	33	82	ditto	ditto
Signal lamp, Projector & Navigation bridge light	1	19/0.052	171	46	82	ditto	Lead sheathed and armoured
Boat deck, Bridge deck & upper bridge deck light	1	37/0.083	470	286	60	Varnished cambric	ditto
Upper deck light	1	7/0.064	23	33	68	Rubber	Lead sheathed and braided
Cargo light	1	19/0.064	37.6	60	68	ditto	Lead sheathed and armoured
Cabine fan	1	7/0.064	10.6	33	76	ditto	Lead sheathed and braided
Battery light	1	19/0.052	20	46	34	ditto	ditto
Ship log	1	20/0.044	0.8	4	143	ditto	ditto
Echo sounder (DC 220V)	1	20/0.064	0.5	7	12	ditto	Lead sheathed and armoured
Fire detector (DC 220V)	1	20/0.029	4	11	12	ditto	ditto
Anchor deck, telegraph and steering telegraph	1	20/0.029	4.5	11	25	ditto	ditto
Echo sounder (AC 110V)	1	20/0.064	0.5	7	100	ditto	ditto
Fire detector & gyro pilot alarm	1	20/0.064	0.15	4	41	Rubber	ditto
Signal bell	1	30/0.044	0.15	4	304	ditto	Lead sheathed and braided
Radar apparatus	1	7/0.064	10	33	40	ditto	Lead sheathed and armoured
Radio apparatus	1	37/0.093	140	331	84	Varnished cambric	ditto
Gyro compass	1	7/0.064	4	33	80	Rubber	Lead sheathed and braided
Gyro pilot power unit	1	7/0.064	10	33	210	ditto	ditto

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.	In the Circuit.			
Piston cooling oil pump	2	115	1	4/0.093	435	605	60 Varnished cambric
Tackel cooling oil pump	2	65	1	4/0.103	245	334	28 Rubber
Bilge & ballast pump	1	60	1	4/0.103	231	334	44 ditto
Fire & G.S. pump	1	60	1	4/0.103	231	334	26 ditto
F.O. transfer pump	2	15	1	19/0.064	58	60	88 Varnished cambric
Electric welding machine	1	13	1	19/0.064	51	130	50 ditto
Engine turning gear	2	10	1	19/0.064	40	60	80 Rubber
Engine room ventilating fan	4	4	1	7/0.064	17	33	80 ditto
Engine lifting crane	2	5	1	19/0.064	28	60	48 ditto
B.S. chiller	1	8	1	19/0.064	32	60	18 ditto
F.O. purifier	2	8	1	19/0.064	32	60	20 ditto
Bilge pump	1	5.5	1	7/0.064	23	33	70 ditto
Work shop machine	1	5	1	7/0.064	21	33	18 ditto
F.O. pump	1	4	1	7/0.064	17	33	20 ditto
F.O. service pump	2	4	1	7/0.064	17	33	20 ditto
L.O. shifting pump	1	4	1	7/0.064	17	33	36 ditto
Sanitary pump	2	4	1	7/0.064	17	33	10 ditto
L.O. purifier	2	3.5	1	7/0.064	15	33	24 ditto
Fuel injection valve cooling water pump	2	2	1	7/0.036	9	17	36 ditto
Oil burning unit	1	1	1	7/0.029	9.7	11	48 ditto
Windlass	1	90	1	37/0.103	340	435	66 Varnished cambric
Moorings winch	1	57	1	37/0.083	223	320	50 ditto
ST cargo winch	6	5.5	1	37/0.083	223	320	30 ditto
ST cargo winch	12	31	1	19/0.083	130	199	30 ditto
Steering gear	2	35	1	37/0.083	135	150	230 ditto
Compressor for refrigerating machine	3	30	1	19/0.083	117	286	38 ditto
Brine pump	3	7.5	1	19/0.052	30	46	24 Rubber
Condenser cooling pump	3	4	1	7/0.064	17	33	46 ditto
Cargo care absorption fan	2	5	1	7/0.064	21	33	98 ditto
" " reactivation fan	2	1.5	1	7/0.029	6	11	94 ditto
" " hold vent. fan	12	2	1	7/0.036	8	17	158 ditto
" " cooling pump	1	3.5	1	7/0.044	14.8	22	106 ditto
Vent fan for saloon	1	1	1	7/0.029	5	11	80 ditto
Motor siren blower	1	15	1	19/0.064	60	130	160 Varnished cambric

24,500



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.

L. Matsushita
 NAGASAKI WORKS
 MITSUBISHI SHIPBUILDING & ENGINEERING CO., LTD
 Electrical Contractors. Date 20th April 1953

COMPASSES.

Have the compasses been adjusted under working conditions... Yes

L. Matsushita
 NAGASAKI WORKS
 MITSUBISHI SHIPBUILDING & ENGINEERING CO., LTD
 Builder's Signature. Date 20th April 1953

Have the foregoing descriptions and schedules been verified and found correct... Yes

Is this installation a duplicate of a previous case... Yes If so, state name of vessel ASO HARI, ARIMAHARI, TOMI SHIMAHARI, ANATAHARI

Plans. Are approved plans forwarded herewith... If not, state date of approval. Feb 22 July 1952

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 letter.
 The material and workmanship are satisfactory.
 The generators and motors etc. have been examined under full loading conditions to Rules requirements and found satisfactory.

Noted SW 15/9/53

Total Capacity of Generators... 775 Kilowatts.

The amount of Fee ... £ 286.500.-

When applied for, JUL 31 1953
 LOCALLY
 When received, 19

Travelling Expenses (if any) £

J. S. Jensen
 Surveyor to Lloyd's Register of Shipping

FRIDAY 18 SEP 1953

Committee's Minute

Assigned See Rpt 4/6.

2h.3.40.—Transfer. (MADE AND PRINTED IN ENGLAND.) (The Surveyors are requested not to write on or below the space for Committee's Minute.)

