

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 3655.50
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 1st - Starboard side, 2nd - 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 245 KW generator: 1300 Amp 2-pole trip free air circuit breaker with reverse current tripping 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 LK type fuse on each pole

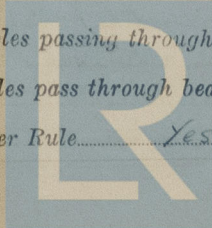
Are compartments containing switchboards composed of fire-resisting material or lined as per Rule Yes Instruments on main switchboard 2 ammeters 5 voltmeters — synchronising devices. For compound machines in parallel are the ammeters and reversed current protection devices connected on the pole opposite to the equaliser connection Yes Earth Testing, state means provided 2-10 watts 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 10 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 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... Emergency Supply, state position... Navigation Lamps, are they separately wired... Secondary Batteries, are they constructed and fitted as per Rule... 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... Are any fittings installed where readily combustible materials or inflammable or explosive dust or gases are likely to be present... and where are the controlling switches fitted... Searchlight Lamps, No. of... Heating and Cooking, is the general construction as per Rule... 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... 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... 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... Control Gear and Resistances, are they constructed and fitted as per Rule... 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... location of transmitter... and receiver... Spare Gear, if the vessel is for open sea service have spares been provided as per Rule and suitably stored in dry situations... Insulation Tests, has the insulation resistance of all circuits and apparatus been tested and found satisfactory...

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 Co.	245	230	1065	375	Heavy oil engine	Mitsubishi Shipbuilding Engineering Co.
AUXILIARY EMERGENCY ...	1	Mitsubishi Electric Co.	40	230	174	600	Heavy oil engine	Nagata Iron Works
ROTARY TRANSFORMER	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 or No. and Dia. of Strands. Sq. ins. or sq. mm.	In the Circuit.	Rule.			
MAIN GENERATOR ...	245	2	4/0.093	1065	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. 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
Panel circuit for galley power etc.	1	19/0.064	775	130	85	ditto	ditto
" " " " " " " "	1	37/0.083	1732	286	60	ditto	ditto
" " " " " " " "	1	19/0.064	30	60	62	Rubber	Lead sheathed and braided
" " " " " " " "	1	19/0.064	257	60	30	ditto	ditto
" " " " " " " "	1	6/0.103	729	522	41	Varnished cambric	Lead sheathed and armoured
" " " " " " " "	1	19/0.064	445	130	62	ditto	Lead sheathed and braided
" " " " " " " "	1	19/0.083	150.8	185	62	ditto	ditto
" " " " " " " "	1	19/0.064	50	130	60	ditto	ditto
" " " " " " " "	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 or 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
Cabin 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 watch, 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	81	Rubber	ditto
Signal bell	1	20/0.044	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.						
Piston cooling oil pump	2	115	1	4/0.093	435	605	60	Varnished cambric
Tackling 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 & 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. classifier	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
Mooring winch	1	57	1	37/0.083	223	320	50	ditto
ST cargo winch	6	53.5	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 secure absorption fan	2	5	1	7/0.064	21	33	98	ditto
" " " " " " " "	2	1.5	1	7/0.029	6	11	94	ditto
" " " " " " " "	12	2	1	7/0.036	8	17	158	ditto
" " " " " " " "	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

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, PRIMA HARI, TOHI SHIMAMARI, ANATA HARI

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,

Travelling Expenses (if any) £

19

H. E. Jensen
Surveyor to Lloyd's Register of Shipping.

FRIDAY 18 SEP 1953

Committee's Minute

Assigned

See Rpt 4/6.