

Rpt. 13.

No. 330

REPORT ON ELECTRICAL EQUIPMENT.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

Received at London Office

7-JUL 1954

Date of writing Report 23 March 1954 When handed in at Local Office 19 Port of Shimonoseki

No. in Survey held at Nagasaki Date, First Survey 27 April 1953 Last Survey 4 Feb 1954
Reg. Book. (No. of Visits 25)

on the Twin Screw motor vessel "AKI-MARU" Tons Gross 732.60 Net 431.64

Built at Nagasaki By whom built Nagasaki Works, Mitsubishi Zosen K.K. Yard No. 1438 When built 1954 2 Mo.

Owners Nippon Yusen Kaisha Port belonging to Tokyo

Installation fitted by Nagasaki Works, Mitsubishi Zosen K.K. When fitted 1954 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 Yes 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-cast, 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

Foreward 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 Phenol-resin and micanite, 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 K.W. generator: 1-30 Amp 2 pole trip free air circuit breaker with

reverse current trip and equalizer links, For 40 K.W. generator: 250 Amp 2 pole, trip free circuit breaker

with reverse current trip and equalizer links

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 L.K. type

Knife 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 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 Elect. 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 Amp

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

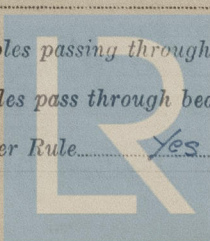
Group of cable are supported on metallic hanger and or backed by perforated plate in engine room etc

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



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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

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. 2-150V. 10A. for Radio

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. Yes are all fuses of an Approved Cartridge Type. Yes 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. Yes Bot. F. Nos. 120-121

E.S.D., if fitted state maker. Nippon Electric Co. location of transmitters in engine room and receivers in engine room Bot. F. Nos. 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.	Amps.	Revs. per Min.	TYPE.	MAKER.
MAIN	3	Mitsubishi Electric Mfg. Co.	245	230	1065	375	Heavy oil eng.	Nagasaki WKS. Mitsubishi Zosen K.K.
AUXILIARY EMERGENCY ROTARY TRANSFORMER	1	Mitsubishi Elect. Mfg. Co.	40	230	174	600	Heavy oil eng.	Daihatsu Kogyo Co.
	2	Nippon Elect. Industry Co.	15 kVA	115	130.3	1800	D.C. 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	9/0.093	1065	605	56	Varnished Cambric	Lead Sheathed and armoured
" " EQUALISER		1	9/0.093	500	605	28	Ditto	Ditto
AUXILIARY EMERGENCY GENERATOR	40	1	37/0.083	174	286	60	Varnished Cambric	Lead Sheathed and armoured
ROTARY TRANSFORMER: MOTOR	25 HP	1	19/0.064	77	130.3	15	Ditto	Ditto
" " GENERATOR	15 kVA	1	37/0.072	130.3	238	15	Ditto	Ditto

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

DESCRIPTION.								
No. 1 Distribution Panel	1	6/0.093	340	448	55	Varnished Cambric	Lead Sheathed and armoured	
No. 2 " "	2	6/0.103	490	522 x 2 = 1044	90	Ditto	Ditto	
No. 3 " "	2	6/0.093	404	896	127	Ditto	Ditto	
No. 4 " "	1	6/0.093	320	448	70	Ditto	Ditto	
Panel circuit for galley power etc.	1	19/0.083	90	185	85	Ditto	Ditto	
" " " Cargo crane system	1	37/0.083	2075	286	60	Ditto	Ditto	
" " " donkey boiler aux. etc.	1	19/0.082	714	101	62	Ditto	Ditto	
" " " turning gear overhead crane	1	19/0.083	132	185	70	Ditto	Ditto	
" " " refrigerating machine	1	9/0.103	2416	334	50	Rubber	Lead Sheathed and braided	
" " " f.o. service pump etc.	1	19/0.052	54	101	70	Varnished Cambric	Lead sheathed and armoured	
" " " L.O. purifier & colloidal filter	1	37/0.072	93	238	66	Ditto	Ditto	
" " " F.W. pump etc.	1	19/0.083	19	185	64	Ditto	Ditto	
" " " eng. room vent. fan etc.	1	19/0.058	78.7	101	50	Ditto	Ditto	

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.			
175 KW. Toaster & 1 KW. Heater	1	2C 7/0.044	12.5	22.3	18	Rubber	Lead Sheathed and braided
1 KW. Heater & 550W. Elect. horn	1	2C 7/0.044	14.9	22	120	Ditto	Ditto
Navigation Bridge light & projector	1	7/0.052	23	55.6	90	Varnished Cambric	Lead sheathed and armoured
Eng. room light	1	7/0.052	16.8	55	20	Ditto	Ditto
Eng. room light	1	19/0.052	51.1	101	50	Ditto	Ditto
Living quarter light	1	19/0.083	137	185	60	Ditto	Ditto
Cargo light	1	19/0.064	54	130	70	Ditto	Ditto
Cabine fan	1	7/0.064	11.1	33	76	Rubber	Lead Sheathed and braided
Ship log	1	2C 7/0.044	0.5	44	13	Ditto	Ditto
Echo sounder (D.C. 220 V.)	1	2C 7/0.064	1.8	7	5	Ditto	Ditto
Fire detector (D.C. 220 V.)	1	2C 7/0.029	5	116	12	Ditto	Ditto
Anchor & docking telegraph and steering telegraph	1	2C 7/0.029	45	118	20	Ditto	Ditto
Echo sounder (A.C. 110 V.)	1	2C 7/0.064	1.8	7	50	Ditto	Ditto
Fire detector & gyro pilot alarm	1	2C 7/0.044	0.15	4	40	Ditto	Ditto
Signal bell	1	2C 7/0.044	2	4	200	Ditto	Ditto
Radar apparatus	1	37/0.093	140	33.7	40	Ditto	Ditto
Radio apparatus	1	19/0.052	9	101	84	Varnished Cambric	Lead Sheathed and armoured
Gyro compass	1	7/0.064	7.5	33	80	Rubber	Lead Sheathed and braided
Gyro pilot power unit	1	7/0.064	2	33	210	Ditto	Ditto

MOTOR CABLES.

ALL IMPORTANT MOTORS TO BE ENUMERATED.	No.	B.H.P.						
Piston cooling oil pump	2	115	1	9/0.093	435	605	60	Varnished Cambric
Jacket cooling pump	2	65	1	9/0.103	245	234	28	Rubber
Bilge & ballast pump	1	60	1	9/0.103	231	334	44	Ditto
Fire & G.S. pump	1	60	1	9/0.103	231	334	40	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	60	Ditto
Eng. turning gear	2	10	1	19/0.052	40	46.6	80	Rubber
Eng. room vent. fan	4	4	1	7/0.064	16.5	33.4	80	Ditto
Eng. lifting crane	2	5	1	19/0.052	28	46.6	48	Ditto
Eng. room exhaust fan	1	2	1	7/0.036	86	17	90	Ditto
F.O. purifier	2	6	1	19/0.052	24.4	46	20	Ditto
Bilge pump	1	5.5	1	7/0.064	22.9	33	32	Ditto
Work shop machines	1	5	1	7/0.064	21	33	12	Ditto
F.W. pump	1	4	1	7/0.064	16.5	33	20	Ditto
F.O. service pump	2	40	1	7/0.064	16.5	33	20	Ditto
L.O. shift pump	1	5	1	7/0.064	16.5	33	28	Ditto
Sanitary pump	1	4	1	7/0.064	16.5	33	40	Ditto
F.O. colloidal filter pump	2	3	1	7/0.064	12.5	33	20	Ditto
Fuel injection valve cooling pump	2	25	1	7/0.036	9	17	60	Ditto
Oil burning unit	1	1	1	7/0.029	47	11	24	Ditto
Windlass	1	90 kW.	1	37/0.103	340	435	66	Varnished Cambric
Hoisting winch	1	57	1	37/0.083	223	320	50	Ditto
5T Cargo winch	4	57	1	37/0.083	223	320	30	Ditto
3T Cargo winch	14	33	1	19/0.083	130	199	30	Ditto
Steering gear	2	35	1	37/0.093	135	337	230	Ditto
Compressor for ref. machine	2	20	1	19/0.052	80	101	30	Ditto
Brine pump	2	5	1	7/0.064	20.4	33	24	Rubber
Circulating pump	2	25	1	7/0.044	104	22	46	Ditto
Cargo crane & fax fan	1	10	1	7/0.052	35.4	55	15	Varnished Cambric
" " " Salivation pump	1	5	1	2C 7/0.064	19	33	20	Rubber
" " " Concentration pump	1	3/4	1	2C 7/0.036	3	17	20	Ditto
" " " Cooling pump	1	10	1	7/0.052	40	55	50	Varnished Cambric
Saloon ventilating fan	1	17	1	7/0.029	5	11	60	Rubber
Turbo siren	1	15	1	19/0.064	60	130	160	Ditto

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. Matsushita
NAGASAKI WORKS
MITSUBISHI SHIPBUILDING & ENGINEERING CO., LTD.

Electrical Contractors.

Date

COMPASSES.

Have the compasses been adjusted under working conditions.

Yes

J. Matsushita
NAGASAKI WORKS
MITSUBISHI SHIPBUILDING & ENGINEERING CO., LTD.

Builder's Signature.

Date

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.

T.H.V. "ARITA-MARU"

Plans. Are approved plans forwarded herewith.

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If not, state date of approval.

Kob 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 condition to Rules requirements and found satisfactory

Total Capacity of Generators *775* Kilowatts.

The amount of Fee ...

87281.500

When applied for,

JUN 25 1954
LOCALLY

When received,

19

Travelling Expenses (if any) £

See Rpt. 1.

Committee's Minute

TUESDAY 31 AUG 1954

Assigned

See Rpt. 46.

Pete Munson Hamada

Surveyor to Lloyd's Register of Shipping.



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