

Rpt. 13.

No. FE-1130

REPORT ON ELECTRICAL EQUIPMENT.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

Date of writing Report 1st Oct. 1961 When handed in at Local Office 19 Port of Nagasaki
 Received at London Office
 No. in Survey held at Nagasaki, Japan Date, First Survey 19-7-1961 Last Survey 18-8-1961
 Reg. Book. (No. of Visits 9) 9556.16
on the m.v. "MANHATTAN MARU" Tons { Gross 9556.16
 Net 5536.04
 Built at Nagasaki, Japan By whom built Mitsubishi Zosen K.K. Yard No. 1561 When built 8-1961
 Owners Daido Kaiun K.K. Port belonging to Kobe
 Installation fitted by Mitsubishi Zosen K.K. When fitted 7-1960
 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 3 Wire 3 Phase Voltage of Lighting 110
 Heating 110 Power 440 D.C. or A.C., Lighting A.C. Power A.C. If A.C. state frequency 60
 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 -, and level compounded under working conditions -
 Are the generators arranged to run in parallel Yes Is the compound winding connected to the negative or positive pole -
 Have machines 100 kw. and over been inspected by the Surveyors during manufacture and testing Yes Have certificates of test for machines
 under 100 kw. been supplied and the results found as per Rule - Position of Generators Port forward, Port Aft
 inner and outer on eng. platform in machy. space

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 Port forward on eng.
 platform in machy. space

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-Bonded Board & Bar, 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 A triple pole linked air circuit breaker with an
 instantaneous over current trip in each phase, an over current relay in each phase, a
 preference over current relay for cargo caire system, thermotank fan and engine room auxiliaries,
 reverse power relay and a triple pole linked isolating switch fitted.
 and the switch and fuse gear (or circuit breakers) for each outgoing circuit A triple pole linked air circuit breaker
 with an over current trip on each insulated pole. Breaker (non fuse TO-Type) made by
 Terasaki Denki Seisakusho.

Are compartments containing switchboards composed of fire-resisting material or lined as per Rule Yes Instruments on main switchboard 6
 ammeters 3 voltmeters 1 synchronising devices. For compound machines in parallel are the ammeters and reverse current
 3 wattmeters, 2 frequency meters 1 watt hour meter - Earth Testing, state means provided 2 sets of
 protection devices connected on the pole opposite to the equaliser connection - metallic filament lamps for power Yes and tested Yes
 and lighting circuits Preference Tripping, state if provided Yes

Switches, Circuit Breakers and Fuses, are they as per Rule Yes, are the fuses an Approved Type Yes
 make of fuses Utsunomiya Elect. Mfg. Co., are all fuses labelled Yes If circuit breakers are provided for the generators, at what
 overload do they operate 25% (480) 11 sec. power power and at what power do the reverse current protective-
 devices operate 30 KW 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 14.3 volts. 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 State
 type of cables (if in conduit this should also be stated) in machinery spaces RLC, VLC., galleys RLC, VLC.
 and laundries RLC (Cables under floorplate in conduit) State how the cables are supported or protected

Cables of metal braided secured by metal clips on coated steel hangers or galvanized
 steel plate, cables in cargo spaces protected by steel platings.

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
 Have refrigeration fan motors been constructed under survey Yes and test certificates supplied Yes
 Are the motors accessible for maintenance at all times Yes

Note: - Type of Cable V - Vanished combric-Insulated
 R - Vulcanised Rubber-Insulated
 L - Lead Alloy-sheathed
 HR - Polychloroprene Compound Sheathed
 C - Metal Braided

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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 Boat dk. aft (battery room), 24V battery unit with automatic control switch in radio room for lighting accommodation, navigation & machinery spaces.

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, fitted and adequately ventilated as per Rule Yes, state battery capacity in ampere hours 2 sets at ;2- AH 24V Where required to do so does it comply with 1948 International Convention Yes

Lighting, is fluorescent lighting fitted Yes If so, state nominal lamp voltage 110V and compartments where lamps are fitted LC

All living quarters include galley, pantries, lavatories, passages etc., and near the main switch board in engine room

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

Searchlights, No. of One, whether fixed or portable Portable, are they of the carbon arc or of the filament type 500 watt 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 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

Lightning Conductors, where required are they fitted as per Rule Yes

Ships carrying Oil having a Flash Point of 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 Yes Are the fittings for pump rooms, 'tween deck spaces, etc., in accordance with the special requirements for such ships Yes Are all cables lead covered as per Rule Yes

E.S.D., if fitted state maker Nippon Electric Co., Ltd. location of transmitter and receiver In Echo Sounder Compartment F.No.130/1

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.
			Kw. per Generator	Volts.	Ampères.	Revs. per Min.	
MAIN	3	Fuji Denki K.K.	225KW	450	385	600	Diesel Daihatsu Kogyo K.K., Osaka
			300KVA				
EMERGENCY ROTARY TRANSFORMER							

GENERATOR CABLES.

DESCRIPTION.	No. of	Kw.	CONDUCTORS.		MAXIMUM CURRENT IN AMPERES. In the Circuit.	APPROX. LENGTH (lead plus return test).	INSULATION.	PROTECTIVE COVERING.
			No. in Parallel per Pole.	Sectional Area or No. and Dia. of Strands. Sq. ins. or sq. mm.				
MAIN GENERATOR	3	225KW	2(3C)	37/.093	400	462	F.11	V LC
EQUALISER		300KVA					A.In 17.5 A.Out 17.5	
EMERGENCY GENERATOR								
ROTARY TRANSFORMER : MOTOR								
GENERATOR								

MAIN DISTRIBUTION CABLES (to Auxiliary Switchboards, etc.).

DESCRIPTION.	No. of	Kw.	CONDUCTORS.	MAXIMUM CURRENT IN AMPERES. In the Circuit.	APPROX. LENGTH (lead plus return test).	INSULATION.	PROTECTIVE COVERING.
Power: (From main switchboard to)							
Eng.Rm. Aux. Main floor stbd.	P-12		1(3C)	37/.072	90	166	58.6 V LC
" " port	P-13		1(3C)	19/.052	44.5	70	25 V LC
" 3rd Dk. port	P-14		1(3C)	19/.064	70	91	22.5 V LC
Eng.Rm. Vent. Fan main floor	P-15		1(3C)	7/.052	26	38	15.2 V LC
Cargo Winch Forward	P-16		2(3C)	37/.083	303	400	53.5x2 V LC
Cargo Winch Aft	P-17		2(3C)	37/.083	303	400	68x2 V LC
Cargo Caire	P-18		1(3C)	19/.083	65.4	128	46 V LC
Ref. Machine	P-19		1(3C)	37/.083	158	200	15.5 V LC
Thermotank Fans	P-20		1(3C)	7/0.52	16	38	40 V LC

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

DESCRIPTION.	No. in Parallel per Pole.	Sectional Area or No. and Dia. of Strands. Sq. ins. or sq. mm.	MAXIMUM CURRENT IN AMPERES.		APPROX. LENGTH (lead plus return test).	INSULATION.	PROTECTIVE COVERING.
			In the Circuit.	Rule.			
Lighting:-							
M.S.B. to 3x20 KVA Trans.	1(3C)	19/.064	77	91	16.5	V	LC
Above trans. to light panel	P-25A	2(3C)	306	332	15.6	V	LC
Lighting Panel to Nav. Bridge	L-1	1(3C)	33	51	36	V	LC
" to Accommodation	L-2	1(3C)	109	166	18.5	V	LC
" to Cargo Light	L-3	1(3C)	84.5	128	19	V	LC
" to Eng.Rm. Light	L-4	1(3C)	88	128	10	V	LC
" to Nav. Light	L-9	1(2C)	2	27	35.0	V	LC
D-F-B(L-1) to Nav. Light		1(2C)	2	55	3.0	V	LC
Cooling and Heating:							
Light Panel to Saloon Pantry	S-B L-6	1(3C)	47	166	29	V	LC
L-6 to Galley & Heater	S-B L-6A	1(3C)	58	166	34	V	LC
Wireless:							
Light Panel to Radio	L-7	1(3C)	24	38	30	V	LC
M.S.B. to Radio	P-22	1(3C)	10	19	31.3	V	LC
Nautical:							
M.S.B. to Gyro Pilot No.1	P-26	1(3C)	1.5	11	100	V	LC
" " No.2	P-27	1(3C)	1.5	11	100	V	LC

MOTOR CABLES.

ALL IMPORTANT MOTORS TO BE ENUMERATED.							
No.	B.H.P.	CONDUCTORS.	MAXIMUM CURRENT IN AMPERES. In the Circuit.	APPROX. LENGTH (lead plus return test).	INSULATION.	PROTECTIVE COVERING.	
J. & P. Cooling F.W.Pumps	2 49 KW	1(3C)	19/.064	78	91	39 V LC	
Cooling Sea Water Pumps	2 55 "	1(3C)	19/.064	84	91	35 V LC	
L.O. Pumps	2 22 "	1(3C)	7/.064	42	51	21 V LC	
Fire & G.S. Pump	1 37 "	1(3C)	19/.052	57.5	70	33.5 V LC	
Bilge & Ballast	1 37 "	1(3C)	19/.052	57.5	70	32 V LC	
Aux. Blower	1 22 "	1(3C)	7/.052	35	38	59 V LC	
Steering Gear Motors	2 22 "	1(3C)	7/.064	46.5	51	135 V LC	
O.F. Transfer Pump	1 11 "	1(3C)	7/.044	20.4	59	21 V LC	
O.F. Service Pump	1 3 "	1(3C)	1/.064	5.28	7	18 R HRC	
O.F. Purifiers	3 2.6 "	1(3C)	3/.036	4	7	13 R LC	
O.F. Purifier & Clarifier	1 2.2 "	1(3C)	3/.036	4	7	15 R LC	
Purifier Pumps	2 2.2 "	1(3C)	3/.036	4	7	21 R LC	
Bilge Pump	1 4.1 "	1(3C)	7/.029	8.1	11	24 R LC	
L.O. Purifier	1 1.5 "	1(3C)	3/.036	2.9	7	14 R LC	
L.O. Shifting	1 3 "	1(3C)	3/.036	5.29	7	19 R HRC	
Forced Circulation Pump	2 5.5 "	1(3C)	7/.029	8.7	11	21 R LC	
Eng. Room Vent. Fans	4 3.3 "	1(3C)	3/.036	5.7	7	58 R LC	
Ref. Compressors	3 22/11"	2(3C)	7/.044	36/22	29	15 V LC	
Ref. Cooling W. Pumps	2 37"	1(3C)	3/.036	6.5	7	17 R LC	
Cold Air Circulating Fans	4 3.7/1.52	3(3C)	3/.036	6.3/3.13	7	56 R LC	
Windlass (440V A.C.)	1	3(3C)	37/.072		116	33 V LC	
Mooring Winch 440 A.C.)	1	3(3C)	19/.083		128	36 V LC	
Leonard M-G Motor	1 85"	1(3C)	19/.064				

NOTE.—Use Rpt. 43 Continuation Sheet if the above space is insufficient.

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.

K. Kita

Electrical Contractors.

Date 15th Sept., 1961

NAGASAKI WORKS

MITSUBISHI SHIPBUILDING & ENGINEERING CO., LTD.

COMPASSES.

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

K. Kita

Builder's Signature.

Date 15th Sept., 1961

NAGASAKI WORKS

MITSUBISHI SHIPBUILDING & ENGINEERING CO., LTD.

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..... Power System 21.6.1961

Main Switch Board 21.6.1961 Lighting System 14.7.1961

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

General Remarks. (State quality of workmanship and materials, opinions as to class, etc.).....

The Electrical Equipments and Installation of this ship have been made under special survey in accordance with the Rules, approved plans and Secretary's letters. The materials and workmanship are good.

All tests and trials required by the Rules have been completed with satisfactory results.

Total Capacity of Generators 900 K.V.A. Kilowatts.

The amount of Fee ... ¥220,500.- : When applied for, NOV 7 1961

Travelling Expenses (if any) £ : When received, 19

A. Iwai Zumi
Surveyor to Lloyd's Register of Shipping

Committee's Minute FRIDAY - 5 JAN 1962

Assigned *Su Rpt. 1*

5m. 6.56. Transfer. (MADE AND PRINTED IN ENGLAND) (The Surveyors are requested not to write on or below the space for Committee Minutes.)



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