

Rpt. 13.

No. FE-1069

REPORT ON ELECTRICAL EQUIPMENT.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

Received at London Office

Date of writing Report 30th July 1960 When handed in at Local Office 19 Port of Nagasaki

No. in Survey held at Nagasaki, Japan Date, First Survey 13-5-1960 Last Survey 6-7-1960

Reg. Book. (No. of Visits 10) Gross 9549.99

on the m.v. "BROOKLYN MARU" Tons Net 5508.25

Built at Nagasaki, Japan By whom built Mitsubishi Zosen K.K. Yard No. 1532 When built 7-1960

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

metallic filament lamps for power Preference Tripping, state if provided Yes, and tested Yes

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

make of fuses Utsunomiya Elect. are all fuses labelled Yes If circuit breakers are provided for the generators, at what

overload do they operate Mfg. Co. 25% (450A) 11 sec. Power and at what 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

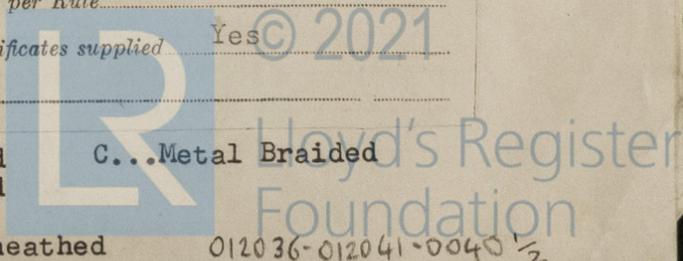
Are the motors accessible for maintenance at all times Yes

Note:- Type of Cable

V...Varnished-Cambric-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 120 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 _____

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 filament type 500 watt

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 _____

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 _____

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 _____, 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 all cables lead covered as per Rule _____

E.S.D., if fitted state maker Tokyo Keiki Seizosha Co., Ltd. location of transmitter and receiver In Echo Sounder Compartment F.No.130/131

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.
			Kw. per Generator.	Volts.	Ampères.		
MAIN	3	Mitsubishi Fuji Denki Seizo K.K., Kawasaki Wks, Kawasaki	224KW 280KVA	450	359	514	Diesel Daihatsu Kogyo K.K., Osaka
EMERGENCY ROTARY TRANSFORMER							

GENERATOR CABLES.

DESCRIPTION.	No. of	Kw.	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	3	224KW 280KVA	2(3C)	37/.093	380	462	F.11	V	LC
EQUALISER							A.In 18 A.Out 16.7		
EMERGENCY GENERATOR									
ROTARY TRANSFORMER: MOTOR									
GENERATOR									

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

DESCRIPTION.	No. of	Kw.	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.	
Power:(From main switchboard to)							
Eng.Rm. Aux. Main floor stbd.	P-12	1(3C)	19/.083	83	128	58.6	V LC
" " port	P-13	1(3C)	19/.052	37	70	25	V LC
" 3rd Dk. port	P-14	1(3C)	19/.064	59	91	22.5	V LC
Eng.Rm. Vent. Fan main floor	P-15	1(3C)	7/.052	22.8	38	15.2	V LC
Cargo Winch Forward	P-16	2(3C)	37/.083	303	400	96.4	V LC
Cargo Winch Aft	P-17	2(3C)	37/.083	303	400	103.6	V LC
Cargo Caire	P-19	1(3C)	19/.083	67.2	128	45.9	V LC
Ref. Machine	P-20	1(3C)	37/.083	158	200	15.2	V LC
Thermotank Fans	P-21	1(3C)	7/0.52	15	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 feet).	INSULATION.	PROTECTIVE COVERING.
			In the Circuit.	Rule.			
Lighting:-							
M.S.B. to 3x20 KVA Trans.450/113	1(3C)	19/.064	77	91	16.5	V	LC
Above trans to light panel P-25A	2(3C)	37/.072	306	332	15.6	V	LC
Lighting Panel to Nav.Bridge L-1	1(3C)	7/.064	37	51	34.5	V	LC
" to Accommodation L-2	1(3C)	37/.072	120	166	18.5	V	LC
" to Cargo Light L-3	1(3C)	19/.083	88	128	16.0	V	LC
" to Eng.Rm.Light L-4	1(3C)	19/.083	95	128	13.0	V	LC
" to Nav. Light L-9	1(2C)	7/.036	2	27	35.0	V	LC
D-F-B(L-1) to Nav. Light	1(2C)	7/.052	2	55	3.5	V	LC
Cooking and Heating:							
Light Panel to Saloon Pantry S-B L-6	1(3C)	37/.072	47	166	29	V	LC
L-6 to Galley & Heater S-B L-6A	1(3C)	37/.072	58	166	34	V	LC
Wireless:							
Light Panel to Radio L-7	1(3C)	7/0.052	24	38	30.5	V	LC
M.S.B. to Radio D-22	1(3C)	7/.036	10	19	32.5	V	LC
Nautical:							
M.S.B. to Gyro Pilot No.1 P-27	1(3C)	7/0.029	1.5	11	100	R	LC
" " No.2 P-28	1(3C)	7/0.029	1.5	11	100	R	LC
D-F-B(L-2) To Boat Dk Light L-2-A	1(3C)	7/0.064	25	51	15.0	V	LC
" To Bridge Dk " L-2-B	1(3C)	19/0.052	36	70	6.0	V	LC
" To Store Light L-2-D	1(3C)	7/0.064	31	51	5.5	V	LC
D-F-B (L-3) To Fore Cargo Light L-3-A	1(3C)	19/0.064	41	91	59	V	LC
" (L-3) To Aft Cargo Light L-3-B	1(3C)	19/0.064	46	91	65	V	LC
D-F-B(L-4) To Engine Room " L-4-A	1(3C)	19/0.064	50	91	12.5	V	LC

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.	
J. & P. Cooling F.W. Pumps	2	49 KW	1(3C)	19/.064	78	91	41	V LC
Cooling Sea Water Pumps	2	55 "	1(3C)	19/.064	84	91	38	V LC
L.O. Pumps	2	22 "	1(3C)	7/.064	42	51	22	V LC
Fire & G.S. Pump	1	37 "	1(3C)	19/.052	57.5	70	30	V LC
Bilge & Ballast	1	37 "	1(3C)	19/.052	57.5	70	33	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	134	V LC
O.F. Transfer Pump	1	11 "	1(3C)	7/.044	20.4	29	22	V LC
O.F. Service Pump	1	3 "	1(3C)	3/.036	5.28	7	18	R LC
O.F. Purifiers	3	2.2 "	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	23	R LC
L.O. Shifting	1	3 "	1(3C)	3/.036	5.29	7	20	R LC
Forced Circulation Pump	2	5.5 "	1(3C)	7/.029	8.7	11	21	R LC
Eng. Room Vent. Fans	4	3.4 "	1(3C)	3/.036	5.7	7	58	R LC
Ref. Compressors	3	22/11 "	2(3C)	7/.064	36/22	51	14	V LC
Ref. Cooling W. Pumps	2	37 "	1(3C)	3/.036	6.5	7	17	R LC
Cold Air Circulating Fans	4		2(3C)	3/.036		7	56	R LC
Windlass (440V D.C.)	1	67 "	1(1C)	19/.083	176	185	26	V LC
Mooring Winch (220V D.C.)	1	40 "	1(1C)	17/.083	208	185	40	V LC
Leonard M-G Motor	1	85 "	1(3C)	19/.083	139	128	11	V LC
Leonard M-G Motor	1	85 "	1(3C)	19/.083	139	128	10	V LC
Leonard M-G Motor(exciter)	1	15 "	1(3C)	7/.044	24.5	29	21	V LC

JFB
3/11/65

NOTE.—Use Rpt. 13 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 30th July, 1960
NAGASAKI WORKS
MITSUBISHI SHIPBUILDING & ENGINEERING CO., LTD.

COMPASSES.

Have the compasses been adjusted under working conditions Yes

K. Kita Builder's Signature. Date 30th July, 1960
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 6.7.1960
Main Switch Board 13.1.1960 Lighting System 30.3.1960, 2.6.1960

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 Equipment 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.

5m.650 - Transfer. (MADE AND PRINTED IN ENGLAND)
(The Surveyors are requested not to write on or below the space for Committee Minute.)

Total Capacity of Generators 840 K.V.A. Kilowatts

The amount of Fee ... £216,000.- When applied for,

SEP 20 1960
LOCALLY

When received,

Travelling Expenses (if any) See Rpt. 1 19

a. Inai Zung
Surveyor to Lloyd's Register of Shipping.

Committee's Minute FRIDAY 11 NOV 1960

Assigned See Rpt. 1.

24.10.60



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