Rpt. 13. No. 9952

REPORT ON ELECTRIC FITTINGS.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

Received at London Office -8 MAR 37

Date of writing Report 8-2-1937 When handed in at Local Office 16-2-1937 Port of KOBE

No. in Reg. Book. Survey held at TAMA Date, First Survey 9-11-36 Last Survey 15-1-1937 (Number of Visits 10)

on the STEEL SINGLE SCREW MOTORSHIP "OMUROSAN MARU" Tons Gross 9205 Net 5288

Built at TAMA By whom built MITSUI BUSSAN KAISHA Yard No. 212 When built 1937

Owners MITSUI BUSSAN KAISHA Port belonging to KOBE

Electric Light Installation fitted by MITSUI BUSSAN KAISHA Contract No. 212 When fitted 1937

Is the Vessel fitted for carrying Petroleum in bulk YES (OIL TANKER).

System of Distribution DIRECT CURRENT TWO WIRE.

Pressure of supply for **Lighting** 110 ✓ volts, **Heating** 110 volts, **Power** 220 volts.

Direct or Alternating Current, Lighting DIRECT CURRENT ✓ **Power** DIRECT CURRENT ✓

If alternating current system, state frequency of periods per second ✓

Has the **Automatic Governor** been tested and found efficient when the whole load is suddenly thrown on or off YES ✓

Generators, do they comply with the requirements regarding rating YES, are they compound wound YES ✓ are they over compounded 5 per cent. YES, if not compound wound state distance between each generator ✓

Where more than one generator is fitted are they arranged to run in parallel LIGHTING --- NO POWER ---- YES ✓, is an adjustable regulating resistance fitted in series with each shunt field YES

Are all terminals accessible, clearly marked, and furnished with sockets YES, are they so spaced or shielded that they cannot be accidentally earthed, short circuited, or touched YES Are the lubricating arrangements of the generators as per Rule YES

Position of Generators LIGHTING ---- 2 (1 ELEC. MOTOR DRIVEN & 1 STEAM ENGINE DRIVEN) IN MACHINERY SPACE. POWER ------ 3 (AUX. DIESEL ENG. DRIVEN) IN MACHY. SPACE & 1 EMERGENCY (DEISEL ENG. DRIVEN) IN ONE,

is the ventilation in way of the generators satisfactory YES, are they clear of all inflammable material YES ✓ if situated near unprotected woodwork or other combustible material, state distance of same horizontally from or vertically above the generators NONE and ✓, are the generators protected from mechanical injury and damage from water, steam or oil YES, are their axes of rotation fore and aft YES

Earthing, are the bedplates and frames of the generating plant efficiently earthed YES ✓ are the prime movers and their respective generators in metallic contact YES

Main Switch Boards, where placed FORWARD END OF MACHINERY SPACE AT MIDDLE PLATFORM ✓

If the generators and main switchboard are not placed in the same compartment, is each generator provided with a fuse on each insulated pole as near as possible to the terminals of the generator, additional to that provided on the main switchboard YES ✓

Switchboards, are they placed in accessible positions, free from inflammable gases and acid fumes YES ✓, are they protected from mechanical injury and damage from water, steam or oil YES ✓, if situated near unprotected woodwork or other combustible material, state distance of same horizontally from or vertically above the switchboards NONE and ✓, are they constructed wholly of durable, non-ignitable non-absorbent materials YES ✓, is all insulation of high dielectric strength and of permanently high insulation resistance YES ✓, if semi-insulating material is used, are all conducting parts insulated from the slab with mica or micanite or other non-hygroscopic insulating material, and the slab similarly insulated from its framework ✓, and is the frame effectively earthed YES ✓. Are the fittings as per Rule regarding :— spacing or shielding of live parts YES, accessibility of all parts YES ✓, absence of fuses on back of board YES ✓, proportion of omnibus bars 2 - 3" x 7/16" ✓, individual fuses to voltmeter, pilot or earth lamp YES, connections of switches 2 POLES

Main Switchgear, description of switchgear for each generator and each outgoing circuit, and arrangement of equalizer switches LIGHTING :- D.P LINKED SWITCH & D.P FUSES. POWER :- TREBLE POLE CIRCUIT BREAKERS WITH OVERLOAD & REVERSE CURRENT TRIPS & D.P LINKED SWITCHES. OUTGOING CIRCUITS :- D.P LINKED SWITCHES & D.P FUSES. ✓

Instruments on main switchboard 7 (1 FOR EMERGENCY GENERATOR) ammeters 8 (1 FOR EMERGENCY GENERATOR.) voltmeters ✓ synchronising device for paralleling purposes.

Earth Testing, state what means are provided at the main switchboard for indicating the state of the insulation of the system VOLT METOR WITH CHANGE SWITCHES FOR BOTH POWER & LIGHTING. ✓

Switches, Circuit Breakers and Fusible Cut-outs, do these comply with the requirements of the Rules YES ✓

Joint Boxes Section and Distribution Boards, is the construction, protection, insulation, material, and position of these as per rule YES ✓

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Cables: *Single, twin, concentric, or multicore* SINGLE *are the cables insulated and protected as per Tables* IV, V, XI *or* XIII *of the Rules* YES

Fall of Pressure, *state maximum between bus bars and any point of the installation under maximum load* ABOUT 5 VOLTS.

Cable Sockets and other connections, *are the ends of all cables having a sectional area of* 0·04 *square inch and above provided with soldering sockets* YES

Paper Insulated Cables. *If cables are paper covered, is the dielectric at the exposed ends of the conductor protected from moisture by being suitably sealed with insulating compound* YES

Cable Runs, *are the cables fixed as far as possible in accessible positions not exposed to drip or accumulation of water or oil, or to high temperature from boilers, steam pipes, uptakes or other hot objects, or to avoidable risk of mechanical damage* YES

Support and Protection of Cables, *state how the cables are supported and protected* SECURED WITH STRONG CLIPS AND PROTECTED BY PIPES AND TRUNKS

If cables are run in wood casings, are the casings and caps secured by screws V, *are the cap screws of brass* V, *are the cables run in separate grooves* V. *If armoured and lead covered cables are secured by metal clips, are the clips spaced as per Table* VIII YES

Refrigerated Chambers, *if lights are fitted, are the cables and fittings in accordance with the special requirements* NONE

Joints in Cables, *state if any, and how made, insulated, and protected* NONE

Watertight Glands and Deck Tubes, *are all cables passing through decks and watertight bulkheads provided with deck tubes or watertight glands* YES

Bushes in Beams and Non-watertight Partitions, *where unarmoured cables pass through beams and non-watertight partitions, are the holes efficiently bushed* YES *state the material of which the bushes are made* LEAD ✓

Earthing Connections, *state what earthing connections are fitted and their respective sectional areas* BOTH POLES INSULATED

, *are their connections made as per Rule* ✓.

Alternative Lighting, *are the groups of lights in the propelling machinery space arranged as per Rule* YES.

Emergency Supply, *state position and method of control of the emergency supply and how the generator is driven* IN ONE COMPARTMENT ON UPPER DECK AT FORWARD END OF ENGINE ROOM CASING, CONTROLED BY SWITCH ON SWITCH BOARD FITTED IN THE SAME COMPARTMENT & DRIVEN BY DEISEL ENGINE WHICH MADE BY MITSUI BUSSAN KAISHA, TAMA, (SEMI GARDNER TYPE) — 20 K.W.

Navigation Lamps, *are these separately wired* YES, *controlled by separate switch and separate fuses* YES, *are the fuses double pole* YES, *are the switches and fuses grouped in a position accessible only to the officers on watch* YES *has each navigation lamp an automatic indicator as per Rule* YES.

Secondary Batteries, *are they constructed and fitted as per Rule* YES.

Fittings, *are all fittings on weather decks, in stokeholds and engine rooms and wherever exposed to drip or condensed moisture, watertight* YES, *are any fittings placed in spaces in which goods are liable to be stacked in close proximity to them; if so, how are they protected* No., *are any fittings placed in spaces where inflammable or explosive dust or gases are liable to be present, if so, how are they protected* GAS TIGHT FITTINGS WITH SUBSTANTIAL GUARDS. ✓, *how are the cables led* BY PIPES & TRUNK. ✓ *where are the controlling switches situated* OUTSIDE COMPARTMENT. ✓

Searchlight Lamps, No. of 4 ✓, *whether fixed or portable* FIXED, *are their fittings as per Rule* YES.

Arc Lamps, *other than searchlight lamps, No. of* NONE, *are their live parts insulated from the frame or case* V, *are their fittings as per Rule* V

Motors, *are their working parts readily accessible* YES ✓, *are the coils self-contained and readily removable for replacement* YES, *are the brushes, brush holders, terminals and lubricating arrangements as per Rule* YES ✓, *are the motors placed in well-ventilated compartments in which inflammable gases cannot accumulate and clear of all inflammable material* YES ✓, *are they protected from mechanical injury and damage from water, steam or oil* YES ✓ *are their axes of rotation fore and aft* YES ✓, *if situated near unprotected woodwork or other combustible material, are the motors of the totally enclosed, pipe ventilated, forced draught, drip or flame proof type* YES, *if not of this type, state distance of the combustible material horizontally or vertically above the motors* ✓ *and* ✓

Control Gear and Resistances, *are the generator field and motor speed regulators, starters and controllers constructed and fitted as per Rule* YES ✓

Lightning Conductors, *where lightning conductors are required, are these fitted as per Rule* ✓

Ships carrying Oil having a Flash Point less than 150° F. *Have the special requirements of the Rules been complied with regarding switches, joint boxes, section and distribution boards, protection of cables, method of distribution, lead of cables, lights and fittings* YES ✓

If portable lamps for use in dangerous spaces are supplied, are they of a type approved by the Home Office NO PORTABLE LAMP. ✓

PARTICULARS OF GENERATING PLANT.

DESCRIPTION OF GENERATOR.	No. of	RATED AT Kilowatts.	Volts.	Amperes.	Revs. per Min.	DRIVEN BY	WHERE DRIVEN BY AN INTERNAL COMBUSTION ENGINE. Fuel Used.	Flash Point of Fuel.
MAIN	3	240 EACH	220	1090	450	DEISEL ENGINE	HEAVY OIL	ABOUT 180°F
AUXILIARY ...	1	10	110	91	450	STEAM ENGINE	" "	" "
EMERGENCY ...	1	20	220	91	1196	DEISEL ENGINE	" "	" 176°F
ROTARY TRANSFORMER	1	10	10	91	1500	ELECTRIC MOTOR	✓	✓

GENERATOR, LIGHTING AND HEATING CONDUCTORS.

DESCRIPTION.	CONDUCTORS. No. per Pole.	CONDUCTORS. Total Effective Area per Pole Sq. Ins.	COMPOSITION OF STRAND. No.	COMPOSITION OF STRAND. Diameter. in m/m	TOTAL MAXIMUM CURRENT. AMPERES. In Circuit.	TOTAL MAXIMUM CURRENT. AMPERES. Rule.	Approximate Length. (Lead and Return.) ~~Feet.~~ Metres	Insulated with	HOW PROTECTED.
MAIN GENERATOR	3	643.38	140	1.4	1090	1236	67	PAPER	LEAD & ARMOURED
EQUALISER CONNECTIONS ...	2	261.60	85	"	545 ✓	600	34	"	" "
AUXILIARY GENERATOR	1	50.90	80	0.9	91	100 ✓	92	RUBBER	" "
EMERGENCY GENERATOR ...	1	"	"	"	"	✓ "	8	"	" "
ROTARY TRANSFORMER { MOTOR ...	1	"	"	"	62	"	12	"	" "
ROTARY TRANSFORMER { GENERATOR...	1	"	"	"	91	✓ "	12	"	" "
ENGINE ROOM.. PORT. (LIGHT).	1	9.87	15	0.91	20	✓ 37	10	"	" "
~~BOILER ROOM~~ " .. STARD. (LIGHT) ...	1	"	"	"	"	"	6	"	" "
AUXILIARY SWITCHBOARDS ...									
GYRO COMPASS, MAIN	1	9.551	19	0.8	5	✓ 37	150	RUBBER	LEAD & ARMOURED
ACCOMMODATION									
FORECASTLE, LIGHT	1	2.001	1	1.6	2.4	✓ 12	100	RUBBER	LEAD & ARMOURED
BRIDGE, LIGHT MAIN	1	3.579	7	0.8	12	✓ 21	140	"	" "
POOP, LIGHT	1	"	"	"	7.5	✓ "	20	"	" "
FAN MOTOR, MAIN	1	6.032	12	"	25	✓ 29	61	"	" "
WIRELESS (MAIN)	1	35.630	56	0.9	"	✓ 80	200	"	" "
SEARCHLIGHT	1	3.579	7	0.8	10	✓ 21	8	"	" "
MASTHEAD LIGHT	1	1.131	1	1.2	0.2	✓ 4.5 ✗ 6	175	"	" "
SIDE LIGHTS	1	"	"	"	"	✓ "	26	"	LEAD
COMPASS LIGHTS	1	"	"	"	"	✓ "	22	"	"
POOP LIGHTS	1	"	"	"	"	✓ "	240	"	LEAD & ARMOURED
CARGO LIGHTS (MAIN.) ...	1	9.551	19	0.8	35	37	182	"	" "
ARC LAMPS									
HEATERS (COOKING RANGE) ...	1	3.579	7	0.8	5.5	✓ 21	120	RUBBER	" "

MOTOR CONDUCTORS.

DESCRIPTION.	No. of Motors.	CONDUCTORS. No. Per Pole.	CONDUCTORS. Total Effective Area per Pole Sq. Ins.	COMPOSITION OF STRAND. No.	COMPOSITION OF STRAND. Diameter. m/m	TOTAL MAXIMUM CURRENT. AMPERES. In Circuit.	TOTAL MAXIMUM CURRENT. AMPERES. Rule.	Approximate Length. (Lead and Return.) ~~Feet.~~ Metres	Insulated with	HOW PROTECTED.
BALLAST PUMP										
MAIN BILGE LINE PUMPS (INDEPENDENT) ...	1	1	50.90	80	0.9	59	✓ 100	31	RUBBER	LEAD & ARMOURED
GENERAL SERVICE PUMP ...	1	1	"	"	"	69	✓ "	12	"	" "
EMERGENCY BILGE PUMP ...										
SANITARY PUMP										
~~CIRC. SEA~~ COOLING WATER PUMPS ...	2	1	86.19	56	1.4	188	✓ 230	70	PAPER	LEAD & ARMOURED
CIRC. FRESH WATER PUMPS...										" "
AIR COMPRESSOR	1	1	169.29	110	1.4	262	✓ 354	55	"	" "
FRESH WATER PUMP	1	1	2.011	1	1.6	6.8	✓ 12	"	RUBBER	" "
ENGINE TURNING GEAR... ...	1	1	23.54	37	0.9	55	✓ 60	18	"	" "
ENGINE REVERSING GEAR ...										
LUBRICATING OIL PUMPS ...	2	1	169.29	110	1.4	230	✓ 354	85	"	" "
OIL FUEL TRANSFER PUMP...	1	1	23.54	37	0.9	48.5	✓ 60	11	"	" "
GALLEY COOKING RANGE FAN ~~WINDLASS~~	1	1	2.011	1	1.6	4.6	✓ 12	90	"	" "
VENTILATING FAN FOR BLOWER MOTOR ~~WINCHES, FORWARD~~	1	1	23.54	37	0.9	45	✓ 60	58	"	" "
ELECT. CLUTCH FOR COMRESSOR SCAVENGE BLOWER	1	1	2.011	1	1.6	3	✓ 12	12	"	" "
~~WINCHES, AFT~~	2	4	861.84	140	1.4	1510	✓ 412	55	PAPER	" "
L.O. PUMP FOR BLOWER	1	1	2.011	1	1.6	2.5	✓ 12	16	RUBBER	" "
STEERING GEAR—										
(a) MOTOR GENERATOR...										
(b) MAIN MOTOR	1	1	86.19	56	1.4	147	✓ 230	76	PAPER	LEAD & ARMOURED
WORKSHOP MOTOR	1	1	2.011	1	1.6	9	✓ 12	16	RUBBER	" "
VENTILATING FANS	2	1	9.551	19	0.8	26	✓ 37	52	"	" "
HOISTING CRANE	2	1	"	"	"	13	✓ "	43	"	" "
OIL FUEL PURIFIER	2	1	3.579	7	"	"	✓ 21	8	"	" "
" " " PUMP	1	1	2.011	1	1.6	9	✓ 12	9	"	" "
LUB. OIL PURIFIER	2	1	3.579	7	0.8	10,87	✓ 21	25	"	" "
" " " PUMP	1	1	"	"	"	13	✓ "	30	"	" "
AUTO FREEZER	1	1	6.032	12	"	21.8	✓ 29	16	"	" "
" " COOLING PUMP	1	1	2.011	1	1.6	4.5	✓ 12	61	"	" "

All Conductors are of annealed copper conforming to British Standard Specification No. 7.

The Insulated Conductors are guaranteed to withstand the immersion and resistance tests specified in the Rules.

The foregoing is a correct description.

E. Maeda. Electrical Engineers. Date Feb. 13th, 1937.

COMPASSES.

Distance between electric generators or motors and standard compass 10 FT. FROM GYRO COMPASS REPEATER.

Distance between electric generators or motors and steering compass 8 FT. " " " "

The nearest cables to the compasses are as follows :—

A cable carrying 2 *Ampères* 6 *feet from standard compass* 2 *feet from steering compass.*

A cable carrying ✓ *Ampères* ✓ *feet from standard compass* ✓ *feet from steering compass.*

A cable carrying ✓ *Ampères* ✓ *feet from standard compass* ✓ *feet from steering compass.*

Have the compasses been adjusted with and without the electric installation at work at full power YES

Has the effect of switching on and off circuits, motors and other electro-magnetic apparatus within the vicinity of the compasses been noted YES. NOT INTERFERED

The maximum deviation due to electric currents was found to be ✓ *degrees on* ✓ *course in the case of the standard compass, and* ✓ *degrees on* ✓ *course in the case of the steering compass.*

PER PRO MITSUI BUSSAN KAISHA, LTD.,
S. Saito.
SUB-MANAGER SHIPBUILDING DEP'T.
Builder's Signature. Date 15th Feb. 1937.

Is this installation a duplicate of a previous case YES. *If so, state name of vessel* M.S. "OTOWASAN MARU"

General Remarks (State quality of workmanship, opinions as to class, &c.)

The Electric Installation of this vessel has been fitted under Special Survey in accordance with the Rules & approved plans.

The materials & workmanship are good.

On Completion the installation was tested under full working conditions & found to be efficient and is eligible, in our opinion, to be accepted for classification.

NOTE:- The Spare gear placed on board is in excess of that required by the Rules.

Noted
J Kun
10.3.37

Total Capacity of Generators 760 ✓ *Kilowatts.*

The amount of Fee ... ... £80-:0-0: When applied for, Jan. 18th 1937

Travelling Expenses (if any) £ : : When received. Feb. 15th 1937

C. Macpherson M. Kamakura.
Surveyor to Lloyd's Register of Shipping.

Committee's Minute FRI 12 MAR 1937

Assigned See Kob. D.E. 9952

2m.3.31.—Transfer

The Surveyors are requested not to write on or below the space for Committee's Minute.)

D.