

# REPORT ON ELECTRIC FITTINGS.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

Received at London Office..... -5 JUN 1936

Date of writing Report 15-4-1936 When handed in at Local Office 23-4-1936 Port of KOBE

No. in Survey held at TAMA Date, First Survey 14-1-36 Last Survey 4-4-1936  
Reg. Book. (Number of Visits... 9)

on the STEEL SINGLE SCREW MOTORSHIP "OTOWASAN MARU" Tons { Gross 9234  
Net 5338

Built at TAMA By whom built MITSUI BUSSAN KAISHA Yard No. 211 When built 1936

Owners MITSUI BUSSAN KAISHA Port belonging to KOBE

Electric Light Installation fitted by MITSUI BUSSAN KAISHA Contract No. 3540688  
3540689 3540690 When fitted 1936

Is the Vessel fitted for carrying Petroleum in bulk YES

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 (ELECTRIC DRIVEN & 1 STEAM ENGINE DRIVEN) IN MACHINERY SPACE.  
POWER--- 3 (AUX. DIESEL ENGINE DRIVEN) IN MACHINERY SPACE & 1 EMERGENCY (DIESEL ENGINE DRIVEN) IN ONE COMPARTMENT, ON UPPER DECK.

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 YES, 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 FORE 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 POLE

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:- TRIPLE POLE CIRCUIT BREAKERS WITH OVERLOAD & REVERSE CURRENT TRIPS

& D.P. LINKED SWITCHES, OUTGOING CIRCUITS:- D.P. LINKED SWITCHES & D.P. FUSES.

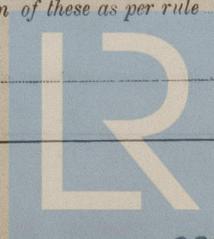
Instruments on main switchboard 7 ammeters 8 voltmeters synchronising device for paralleling purposes.

Earth Testing, state what means are provided at the main switchboard for indicating the state of the insulation of the system VOLT METERS 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 5 VOLTS (APPROXIMATELY)

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, valves 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 CRIPS AND PROTECTED BY PIPES AND TRUNK.

If cables are run in wood casings, are the casings and caps secured by screws ✓, are the cap screws of brass ✓, are the cables run in separate grooves ✓. 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 FORE END OF ENGINE ROOM CASING; CONTROLLED BY SWITCH ON SWITCH BOARD FITTED IN THE SAME COMPARTMENT AND DRIVEN BY DIESEL ENGINE OF "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 TUBES

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

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

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 LAMPS

PARTICULARS OF GENERATING PLANT.

DESCRIPTION OF GENERATOR.	No. of	RATED AT				DRIVEN BY	WHERE DRIVEN BY AN INTERNAL COMBUSTION ENGINE.	
		Kilowatts.	Volts.	Ampères.	Revs. per Min.		Fuel Used.	Flash Point of Fuel.
MAIN	3	240 KW. ENCH	220	1090	450	DIESEL ENGINE	HEAVY OIL	ABOUT 180° F
AUXILIARY	1	10 "	110	91	450	STEAM ENGINE	HEAVY OIL	" "
EMERGENCY	1	20 "	220	91	900	DIESEL ENGINE	HEAVY OIL	" "
ROTARY TRANSFORMER	1	10 "	110	91	1500	ELECTRIC MOTOR	✓	✓

GENERATOR, LIGHTING AND HEATING CONDUCTORS.

DESCRIPTION.	CONDUCTORS.		COMPOSITION OF STRAND.		TOTAL MAXIMUM CURRENT. AMPERES.		Approximate Length. (Lead and Return.) Feet.	Insulated with	HOW PROTECTED.
	No. Per Pole.	Total Effective Area per Pole Sq. Ins.	No.	Diameter. in. (total)	In Circuit.	Rule.			
MAIN GENERATOR	3	1.0700	350	.79"	1090	2855	220	PAPER	LEAD COVERED & ARMOURED
EQUALISER CONNECTIONS	2	.4070	200	.60"	545	928	110	"	" " "
AUXILIARY GENERATOR	1	.0810	80	.375	91	101	200	RUBBER	" " "
EMERGENCY GENERATOR	1	.0810	80	.375	91	101	12	"	" " "
ROTARY TRANSFORMER MOTOR	1	.0810	80	.375	62	101	52	"	" " "
ROTARY TRANSFORMER GENERATOR	1	.0810	80	.375	91	101	52	"	" " "
ENGINE ROOM PORT (LIGHT)	1	.0153	15	.160	10	45	30	"	" " "
ENGINE ROOM STARBOARD (LIGHT)	1	.0153	15	.160	10	45	32	"	" " "
AUXILIARY SWITCHBOARDS									
ACCOMMODATION									
FORECASTLE, LIGHT	1	.0032	1	.064	18	198	320	RUBBER	LEAD COVERED
BRIDGE, LIGHT MAIN	1	.0305	30	.231	18.0	55.0	448	"	" " "
POOP, LIGHT	1	.0071	7	.108	7.0	24.2	120	"	" " "
FAN MOTOR	1	.0032	1	.064	5.0	19.8	30	"	" " "
WIRELESS (MAIN)	1	.0370	37	.250	25.0	61.4	520	"	" " " & ARMOURED
SEARCHLIGHT	1	.0018	1	.048	1.1	7.2	56	"	" " "
MASTHEAD LIGHT	1	.0018	1	.048	.18	7.2	460	"	" " "
SIDE LIGHTS	1	.0018	1	.048	.18	7.2	58	"	" " "
COMPASS LIGHTS	1	.0018	1	.048	.01	7.2	20	"	" " "
POOP LIGHTS									
CARGO LIGHTS (MAIN)	1	.0153	15	.160	20	45.0	182	RUBBER	LEAD COVERED & ARMOURED
ARC LAMPS									
HEATERS (COOKING RANGE)	1	.0071	7	.108	11	24.2	240	RUBBER	LEAD COVERED

MOTOR CONDUCTORS.

DESCRIPTION.	No. of Motors.	CONDUCTORS.		COMPOSITION OF STRAND.		TOTAL MAXIMUM CURRENT. AMPERES.		Approximate Length. (Lead and Return.) Feet.	Insulated with	HOW PROTECTED.
		No. Per Pole.	Total Effective Area per Pole Sq. Ins.	No.	Diameter.	In Circuit.	Rule.			
BALLAST PUMP										
MAIN BILGE LINE PUMPS (INDEPENDENT)	1	1	.0810	80	.375	59	101	240	RUBBER	LEAD COVERED & ARMOURED
GENERAL SERVICE PUMP	1	1	.0810	80	.375	69	101	180	"	" " "
EMERGENCY BILGE PUMP										
SANITARY PUMP										
CIRC. SEA WATER PUMPS	2	1	.1527	150	.579	188	251	230	PAPER	LEAD COVERED & ARMOURED
CIRC. FRESH WATER PUMPS										
AIR COMPRESSOR	1	1	.2545	250	.663	246	349	180	PAPER	LEAD COVERED & ARMOURED
FRESH WATER PUMP	1	1	.0032	1	(No. 6 swg)	6.8	19.8	40	RUBBER	" " "
ENGINE TURNING GEAR	1	1	.0610	60	.324	57	83.8	78	"	" " "
ENGINE REVERSING GEAR										
LUBRICATING OIL PUMPS	2	1	.2540	250	.663	230	348.6	200	PAPER	LEAD COVERED & ARMOURED
OIL FUEL TRANSFER PUMP	1	1	.0610	60	.324	48.5	83.8	30	RUBBER	" " "
WINDLASS										
WINCHES, FORWARD										
ELECTRIC CLUTCH FOR COMPRESSOR	1	1	.0032	1	.064	6	19.8	28	RUBBER	LEAD COVERED & ARMOURED
WINCHES, AFT										
SCAVENGE BLOWER	2	4	1.0000	140	.650	1570	3636	140	PAPER	LEAD COVERED & ARMOURED
LUB. OIL PUMP FOR BLOWER, STEERING GEAR	1	1	.0032	1	.064	3	19.8	140	RUBBER	" " "
(a) MOTOR GENERATOR	1	1	.1527	150	.579	160	251	420	PAPER	LEAD COVERED & ARMOURED
(b) MAIN MOTOR	1	1	.0032	1	.064	9	19.8	50	RUBBER	" " "
WORKSHOP MOTOR										
VENTILATING FANS	2	1	.0153	15	.160	26	45	180	"	" " "
HOISTING CRANE	2	1	.0120	12	.160	12	33.2	170	"	" " "
OIL FUEL PURIFIER	2	1	.0120	12	.160	7.8	33.2	40	"	" " "
" " " PUMP	1	1	.0032	1	.064	9	19.8	42	"	" " "
LUB. OIL PURIFIER	2	1	.0071	7	.108	7.8	24.2	140	"	" " "
" " " PUMP	1	1	.0120	12	.160	13	33.2	140	"	" " "
REFRIGERATING MACHINE	1	1	.0120	12	.160	22	33.2	64	"	" " "
AUT. FREEZER PUMP	1	1	.0032	1	.064	4.5	19.8	120	"	" " "

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 *17th Apr. 1936.*

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. FROM GYRO COMPASS REPEATER.*  
 The nearest cables to the compasses are as follows:—  
 A cable carrying *2* Amperes *6* feet from standard compass *2* feet from steering compass.  
 A cable carrying *✓* Amperes *✓* feet from standard compass *✓* feet from steering compass.  
 A cable carrying *✓* Amperes *✓* 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.,

*Saito*

Builder's Signature.

Date *17th April 1936.*

SUB-MANAGER SHIPBUILDING DEPT.

Is this installation a duplicate of a previous case *No.* If so, state name of vessel *✓*

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

*The Electrical Installation of this vessel has been fitted under special survey in accordance with the Rules & approved plans.*

*The materials and workmanship are good.*

*On completion the installation was tested under full working conditions and found to be efficient and is eligible, in my opinion, to be accepted for classification.*

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

*Noted  
F.J.  
6/6/36.*

Total Capacity of Generators *760* Kilowatts.

The amount of Fee ... .. £ *80-0-0* { When applied for, *7th Apr. 1936*

Travelling Expenses (if any) £ : : *26-6-30* { When received, *26/6*

*M. Kamakura.*

Surveyor to Lloyd's Register of Shipping.

Committee's Minute

FRI. 12 JUN 1936

Assigned

*See minute on  
H.E. Rpt.*

2m, 31.—Transfer  
The Surveyors are requested not to write on or below the space for Committee's Minute.



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