

REPORT ON ELECTRIC FITTINGS.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

Received at London Office

JUL - 8 1937

Date of writing Report 8th June 1937 When handed in at Local Office 8th June 1937 Port of NAGASAKI.

No. in Survey held at NAGASAKI. Date, First Survey 20th Feb. 37 Last Survey 14th May 1937
Reg. Book. (Number of Visits 7)88997 on the Single Screw Motor Vessel "KOTOKU MARU" Tons { Gross 6701
Net 4860

Built at Nagasaki By whom built Mitsubishi Jukogyo KK Yard No. 671 When built 1937

Owners Hiroumi Shoji Kabushiki Kaisha. Port belonging to Osaka.

Electric Light Installation fitted by Mitsubishi Jukogyo K.K. Nagasaki Contract No. 671 When fitted 1937

Is the Vessel fitted for carrying Petroleum in bulk No.

System of Distribution Two wire system. D.C. ✓

Pressure of supply for Lighting 220 volts, Heating 220 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 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 In Main Engine Room. ✓

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

/ 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 Fore Bulkhead in Main Engine Room. ✓

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 /

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 / 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 Yes ✓

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 Yes ✓, individual fuses to voltmeter, pilot or earth lamp Yes ✓, connections of switches Yes ✓

Main Switchgear, description of switchgear for each generator and each outgoing circuit, and arrangement of equalizer switches A double pole knife

switch and a double pole circuit breaker with over load release, reverse current trip & time-

lag device and a single pole equalizer switch interlocked with the circuit breaker as per rule

for each of 90 K.W. Main dynamos: a d.p.knife switch and d.p.fuse or double circuit breaker

for each of out going circuits

Instruments on main switchboard 5 ammeters 2 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 Lamp with fuse and

switch.

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 ✓

Ref. No.	DESCRIPTION	CONDUCTORS		COMPOSITION OF STRAND		TOTAL MAXIMUM CURRENT, AMPERES		Approximate Length, (Lead & Solder) Feet	Insulated with	HOW PROTECTED
		No. per Pole	Total Effective Area per Pole Sq. Ins.	No.	Diameter	In Circuit	Rule			
1	Cool. water & San. pump.	1	159.00	37	2.35	198.0	214.0	50	Rubber	Lead Covered.
2	Lub. oil pump	1	25.60	19	1.30	58.5	64.0	36	"	"
3	Fuel oil transfer pump	1	14.25	7	1.63	43.8	46.0	44	"	"
4	Bilge & ballast pump	1	65.00	19	2.10	105.0	118.0	50	"	"
5	Bilge & Gen. service pump	1	38.70	"	1.63	80.0	83.0	44	"	"
6	Bilge pump	1	25.60	"	1.30	50.0	64.0	36	"	"
7	Main Eng. turning Motor	1	14.25	7	1.63	42.0	46.0	54	"	"
8	Work shop motor	1	4.52	7	.91	22.0	24.0	36	"	"
9	Hoist motor	1	"	7	"	21.0	"	44	"	"
10	Fuel oil bur. unit	1	9.45	7	1.30	23.9	37.0	28	"	"
11	" " " (Motor)	1	4.52	7	.91	14.8	24.0	2	"	"
12	" " " (Heater)	1	"	"	"	9.1	"	2	"	"
13	Boiler tube cleaner motor	1	"	"	"	9.0	"	2	"	"
14	No. 2 Fuse board box.	1	38.70	19	1.63	74.0	83.0	50	"	"
15	Lub. oil shifting pump	1	4.52	7	.91	7.3	24.0	10	"	"
16	Fuel oil service pump	1	"	"	"	"	"	10	"	"
17	Lub. oil purifier	1	"	7	"	12.6	"	20	"	"
18	Fuel oil purifier	1	"	7	"	"	"	14	"	"
19	Fresh water pump	1	"	7	"	9.0	"	28	"	"
20	Electric welder	1	159.00	37	2.35	200.00	214.0	16	"	"
21	Main dynamo	1	480.00	91	2.60	400.0	461.0	44	"	"
22	No. 1 fuse board	1	262.00	61	2.35	387.0	452.0	90	"	"
23	Wireless motor	1	195.00	37	2.60	24.50	283.0	56	"	"
24	5 ton cargo winch	1	75.30	"	1.63	129.0	138.0	20	"	"
25	No. 2 fuse board	1	262.00	61	2.35	361.0	452.0	30	"	"
26	5 ton cargo winch	1	75.30	37	1.63	129.0	138.0	58	"	"
27	3 ton cargo winch	1	"	"	"	112.0	"	56	"	"
28	No. 3 fuse board	1	262.00	61	2.35	361.0	452.0	116	"	"
29	5 ton cargo winch	1	75.30	37	1.63	129.0	138.0	15	"	"
30	3 ton cargo winch	1	"	"	"	112.0	"	20	"	"
31	5 ton Mooring winch	1	"	"	"	"	"	60	"	"
32	Steering motor	1	25.60	19	1.30	52.5	65.0	7	"	"
33	"	1	"	"	"	"	"	188	"	"
34	No. 4 fuse box	1	4.52	7	.91	13.65	24.0	40	"	"
35	Cooking fan motor	1	"	7	"	4.55	"	30	"	"
36	Electric heater	1	"	7	"	9.1	"	10	"	"
37	No. 3 fuse box	1	49.00	19	1.85	74.4	97.0	34	"	"
38	Brine pump	1	4.52	7	.91	7.2	24.0	12	"	"
39	Ref. Com. & Sea W. C. Pump	1	25.60	19	1.30	60.0	64.0	6	"	"
40	Wireless Tel. switchboard	1	"	"	"	39.0	"	48	"	"
41	Motor-Generator (Motor)	1	4.52	7	.91	15.0	24.0	20	"	"
42	" " (Gen)	1	"	7	"	8.0	"	20	"	"
43	" " (Motor)	1	"	7	"	18.0	"	20	"	"
44	" " (Gen)	1	"	7	"	2.5	"	20	"	"
45	Battery for Wl. tel.	1	14.25	7	1.63	24.0	46.0	17	"	"
46	No. 1 fuse box	1	4.52	7	.91	7.2	24.0	16	"	"
47	No. 5 fuse board box.	1	"	7	"	2.2	"	48	"	"
48	Fire detector	1	2.08	1	1.63	0.6	12.9	4	"	"
49	Fire detector exh. L.	1	"	1	"	"	"	6	"	"
50	Submain board S. 1.	1	9.45	7	1.30	20.58	37.0	36	"	"
51	Dist. board D. 1.	1	4.52	7	.91	13.78	24.0	16	"	"
52	" " D. 2.	1	"	7	"	16.88	"	1	"	"
53	" " D. 3.	1	"	7	"	15.69	"	20	"	"
54	Bus bar light in E. Rm	1	1.13	1	1.20	1.73	7.4	20	"	"
55	Eng. Rm batt. lamp	1	4.52	7	.91	6.25	24.0	40	"	"
56	Chang dev. for batt port L.	1	1.13	1	1.20	0.55	7.4	1	"	"
57	Submain board S. 2.	1	9.45	7	1.30	16.5	37.0	90	"	"
58	Cargo Light (No. 1 C. hatch)	1	4.52	7	.91	5.0	24.0	2	"	"
59	Flex. cord for portable L.	1	3.11	110	.19	2.27	13.0	46	"	"
60	" " " L.	1	"	"	.19	1.36	"	44	"	Cable Type sheathed
61	Cargo light (No. 2 C. hatch)	1	4.52	7	.91	6.36	24.0	2	"	Lead Covered
62	Flex. cord for Portable L.	1	3.11	110	.19	2.27	13.0	46	"	Cable Type sheathed
63	" " " "	1	"	"	"	1.36	"	44	"	Lead Covered
64	Cargo light (No. 3 C. hatch)	1	4.52	7	.91	5.14	24.0	60	"	C. T. S.
65	Flex. cord for portable L.	1	3.11	110	.19	2.27	13.0	46	"	"
66	" " " "	1	"	"	"	1.36	"	44	"	"
67	" " " "	1	1.13	40	"	0.136	5.0	44	"	"
68	Submain board S. 3.	1	9.45	7	1.30	16.50	37.0	116	"	Lead Covered
69	Cargo light (No. 4 C. hatch)	1	4.52	7	.91	5.14	24.0	60	"	"
70	Flex. cord for portable L	1	3.11	110	.19	2.27	13.0	46	"	C. T. S.
71	" " " "	1	1.13	40	"	0.136	5.0	44	"	"
72	" " " "	1	3.11	110	"	1.36	13.0	44	"	"
73	Cargo light (No. 5 C. hatch)	1	4.52	7	.91	6.36	24.0	2	"	Lead Covered
74	Flex. cord for portable L.	1	3.11	110	.19	2.27	13.0	46	"	C. T. S.
75	" " " "	1	"	"	"	1.36	"	44	"	"
76	Cargo light (No. 6 C. hatch)	1	4.52	7	.91	5.00	24.0	2	"	Lead Covered
77	Flex. cord for portable L	1	3.11	110	.19	2.27	13.0	46	"	C. T. S.
78	" " " "	1	"	"	"	1.36	"	44	"	"
79	Nav. light indicator	1	4.52	7	.91	0.92	24.0	46	"	Lead Covered
80	Fore mast lamp	1	1.13	1	1.20	0.18	7.4	148	"	"
81	Starb. side lamp	1	"	1	"	"	"	36	"	"
82	Port side lamp	1	"	1	"	"	"	136	"	"
83	Main mast lamp	1	"	1	"	"	"	176	"	"
84	Stern lamp	1	"	1	"	"	"	188	"	"
85	Submain board S. 4.	1	14.25	7	1.63	36.4	46.0	30	"	"

Cables: Single, twin, concentric, or multicore Single & Multicore 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 7.5 volts for Power.
5.6 volts for Lighting.
 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 /
 Cable Runs, are the cables sized 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 Clamped on perforated or unperforated
steel plate by metal clips and protected by metal covers or steel pipe where necessary.
 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 Yes
 Joints in Cables, state if any, and how made, insulated, and protected By junction box as per rule.
 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 There is no earthing connection
except for the wireless telegraph, sectional area of which is 25.60 square millimeter.
/, are their connections made as per Rule Yes
 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 /
 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 storerooms~~ 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 Lamps in stores are
protected by strong metal guards, over heavy glass, air tight, bowls.
/, are any fittings placed in spaces where inflammable or explosive dust or gases are liable to be present, if so, how are they protected /, how are the cables led /
/, where are the controlling switches situated /
 Searchlight Lamps, No. of /, whether fixed or portable /, are their fittings as per Rule /
 Arc Lamps, other than searchlight lamps, No. of /, 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 /, 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 /
 If portable lamps for use in dangerous spaces are supplied, are they of a type approved by the Home Office /

PARTICULARS OF GENERATING PLANT

DESCRIPTION OF GENERATOR.	No. of	RATED AT				DRIVEN BY	WHERE DRIVEN BY AN INTERNAL COMBUSTION ENGINE.	
		Kilowatts.	Volts.	Ampères.	Rtvs. per Min.		Fuel Used.	Flash Point of Fuel.
MAIN ...	3	90	225	400	400	Diesel Engine	Diesel Oil.	F.P. above 150° F.
AUXILIARY ...								
EMERGENCY ...								
ROTARY TRANSFORMER	1	2 K.V.A.	250	8	3000	D.C. Motor 3.5 HP 220V.	15 A.	
	1	1 K.V.A.	100	2.5	3750	D.C. Motor 0.45HP 30V.	18 A.	

GENERATOR, LIGHTING AND HEATING CONDUCTORS.

[illegible]

MOTOR CONDUCTORS.

[illegible]

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.

Y. Masaki
Electrical Engineers.

Date

COMPASSES:

Distance between electric generators or motors and standard compass 4.5 meters from 1/8 HP fire detector exhaust fan Motor.

Distance between electric generators or motors and steering compass 6 " " " " " " " " "

The nearest cables to the compasses are as follows:—

A cable carrying 0.06 Ampères 0.3 meters from standard compass 0.3 meter 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

The maximum deviation due to electric currents was found to be Nil degrees on Any and every course in the case of the standard compass, and Nil degrees on Any & every course in the case of the steering compass.

NAGASAKI WORKS, MITSUBISHI TUKUYO KABUSHIKI KAISHA.

Y. Ojawa
Builder's Signature.

Date 17-6-37

Is this installation a duplicate of a previous case / If so, state name of vessel /

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

This installation has been constructed under Special survey in accordance with the Rules and Approved plans, and the materials and workmanship are good.

Full load, overload and parallel running tests have been carried out with satisfactory results.

All motors and lighting circuits have been tried under full working condition and found satisfactory.

This case is eligible in our opinion to have the notation of "Electric lights & Wireless" in the Register Book.

Plans sent under separate cover of:- Wiring diagram of Power, Lighting & Cabin fan.

Noted
In
14-7-37

Total Capacity of Generators 270 Kilowatts.

The amount of Fee ... £38-5-0 : When applied for, 20. 5. 19. 37
Travelling Expenses (if any) £ : When received, 10. 6. 19. 37

H. Buchanan & *T. Kinnison*
Surveyor to Lloyd's Register of Shipping.

Committee's Minute

FRI 16 JUL 1937

Assigned

See above F. E. rpt.



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Foundation