

REPORT ON ELECTRIC FITTINGS.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

Received at London Office 5 SEP 1933

Date of writing Report 14-8-33 to When handed in at Local Office 15-8-33 to Port of Kobe

No. in Survey held at Tama Date, First Survey 19-6-23 Last Survey 26-7-23 19
Reg. Book.on the Single Screw Motor Ship "AZUMASAN MARU" Gross 7614
Tons Net

Built at Tama By whom built Inoue Kisen Kaisha Ltd. Kurehatach Yard No. 195 When built 1933

Owners Inoue Kisen Kaisha Ltd. Port belonging to Kobe

Electric Light Installation fitted by Inoue Kisen Kaisha Ltd. Contract No. 195 When fitted 1933

System of Distribution Two wire closed circuit

Pressure of supply for Lighting 220 volts, Heating 220 volts, Power 220 volts.

Direct or Alternating Current, Lighting Direct Power Direct

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 Engine room, sternboard side

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 Main engine room, bottom platform, fore and aft side

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 draile, non-ignitable non-absorbent materials yes, (Bakelite), 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 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 Each generator fitted with double pole switch, double pole circuit breaker with overload, reverse release + equalizer switch connected as per Rule

Instruments on main switchboard 6 ammeters 3 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

Two volt meter - 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

Single, twin, concentric, or multicore ~~multicore~~ are the cables insulated and protected as per Tables IV or V of the Rules *yes*
Fall of Pressure, state maximum between bus bars and any point of the installation under maximum load *60ft for main circuit*
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 *by brass clips & steel hangers*
protected by iron in places, cable weather deck protected by watertight trunk
 If cables are run in wood casings, are the casings and caps secured by screws *yes*, are the cap screws of brass *yes*, are the cables run in separate grooves *no*. 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 *no*
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
are their connections made as per Rule
Alternative Lighting, are the groups of lights in the prop'ing 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 *upper deck, fasten CR*
controlled by change over switch; driven by direct coupled diesel engines
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 where ever 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 *none*, are any fittings placed in spaces where inflammable or explosive dust or gases are liable to be present, if so, how are they protected *none*, how are the cables led *(wires)*, where are the controlling switches situated
Incandescent
Searchlight Lamps, No. of 4-500 watt, whether fixed or portable *fixed*, are their fittings as per Rule *yes*
Arc Lamps, other than searchlight lamps, No. of *2*, are their live parts insulated from the frame or case *no*, are their fittings as per Rule *yes*
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*, are they *insufficient*, if situated near unprotected woodwork or other combustible material, are the motors of the totally enclosed, pipe ventilated forced drawnt, drip or flame proof type *no*, if not of this type, state distance of the combustible material horizontally or vertically above the motors *no* and *no*
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 *yes*
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 *no*
 If portable lamps for use in dangerous spaces are supplied, are they of a type approved by the Home Office *no*

PARTICULARS OF GENERATING PLANT.							
DESCRIPTION OF GENERATOR.	No. of	Kilowatts.	Volts.	RATED AT	Ampères.	Revs. per Min.	DRIVEN BY
MAIN ...	3 ✓	133 ✓	220 ✓	605	320	✓	Diesel Engine
AUXILIARY ...	1	13.7	220	60.5	72.0	✓	Generator
EMERGENCY ...	1	20	220	91	900	"	"
ROTARY TRANSFORMER							

LIGHTING AND HEATING CONDUCTORS.

Ref. No.	DESCRIPTION.	No. of Conductors.	Effective Area of each Conductor, Sq. Ins.	COMPOSITION OF STRAND.	No.	Diameter.	Total Maximum Current Ampères.	Approximate Length (Lead and Return) Feet.	Insulated with	HOW PROTECTED.
MAIN GENERATOR...	2	0.2545	250 ✓ SWG. 20	605 ✓	156	✓	156	✓	Paper	Armoured
EQUALISER CONNECTIONS ...	1	"	" ✓	303 ✓	80	✓	"	"	"	"
AUXILIARY GENERATOR										
EMERGENCY GENERATOR	1	0.112	110	"	91	10	Rubber	"	"	"
ROTARY TRANSFORMER...										
AUXILIARY SWITCHBOARDS ...	1	0.2545	250	20	227	✓	240	✓	Paper	"
ENGINE ROOM	1	0.0071	7	"	20 ✓	180	✓	Rubber	"	"
BOILER ROOM ...										
ACCOMODATION	1	0.0153	15	" ✓	15	✓	230	✓	"	"
WIRELESS	1	0.0305	30 ✓ SWG. 20	25 ✓	316 ✓	Rubber	Armoured	"	"	"
SEARCHLIGHT ...	1	0.0071	7	"	9	60	✓	Lead	"	"
MASTHEAD LIGHT...	1	0.0018	1	18	0.2	✓	350	✓	Armoured	"
SIDE LIGHTS ...	1	"	1	"	"	50	✓	"	"	"
COMPASS LIGHTS ...	1	"	1	"	0.07	20	✓	"	"	"
POOP LIGHTS ...	1	"	1	"	0.2	500	✓	"	"	"
CARGO LIGHTS ...										
ARC LAMPS Room ...	1	0.1527	150 ✓ 20 ✓	129 ✓	168 ✓	Paper	"	"	"	"
HEATERS Bath ...	1	0.0611	60 ✓ 10 ✓	68 ✓	168 ✓	Rubber	"	"	"	"

Ref. No.	DESCRIPTION.	No. of Motors.	Effective Area of each Conductor, Sq. Ins.	COMPOSITION OF STRAND.	No.	Diameter.	Total Maximum Current Ampères.	Approximate Length (Lead and Return) Feet.	Insulated with	HOW PROTECTED.
BALLAST PUMP ...	1	0.1527	150 ✓ SWG. 20	200	136	✓	136	✓	Paper	Armoured
MAIN BILGE LINE PUMPS ...	1	0.0611	60 ✓	20 ✓	60 ✓	56	✓	Paper	"	"
GENERAL SERVICE PUMP ...	1	0.0611	60 ✓	20 ✓	80 ✓	50 ✓	"	"	"	"
EMERGENCY BILGE PUMP ...										
SANITARY PUMP ...										
CIRC. SEA WATER PUMPS ...	2	0.1527 ✓	150 ✓ 20 ✓	160 ✓	160 ✓	Paper	"	"	"	"
CIRC. FRESH WATER PUMPS ...	2	0.2545	250 ✓	20 ✓	345 ✓	164	✓	"	"	"
AIR COMPRESSOR ...	1	0.0032	1	16	9	80	Rubber	"	"	"
FRESH WATER PUMP ...	1	0.0032	1	16	9	80	"	"	"	"
ENGINE TURNING GEAR ...	1	0.0305	30 ✓ 20 ✓	48 ✓	98 ✓	"	"	"	"	"
ENGINE REVERSING GEAR ...	2	0.1527	150 ✓	20 ✓	238 ✓	160 ✓	Paper	"	"	"
LUBRICATING OIL PUMPS ...	1	0.0611	60 ✓	20 ✓	60 ✓	70	Rubber	"	"	"
OIL FUEL TRANSFER PUMP ...	1	0.1527	150 ✓	20 ✓	240 ✓	400	Paper	"	"	"
WINDLASS ...										
WINCHES, FORWARD ...	24	0.2036	250	20	766	225	Rubber	"	"	"
WINCHES, AFT ...	24	"	"	"	226 ✓	500	Paper	"	"	"
STEERING GEAR—										
(a) MOTOR GENERATOR ...	1	0.1527	150 ✓	20 ✓	144 ✓	650	Paper	"	"	"
(b) MAIN MOTOR ...	1	0.1120	110	20	104	30	Rubber	"	"	"
WORKSHOP MOTOR ...	1	0.0032	1 ✓	16	92 ✓	70	"	"	"	"
VENTILATING FANS ...	1	0.0305	30 ✓	20 ✓	32 ✓	110 ✓	"	"	"	"
Refrigerator Compressor	2	0.0305	30 ✓	20 ✓	48 ✓	100	"	"	"	"
" Cooling Pump	2	0.0032	1	16	6	"	"	"	"	"
" Burner Pump	2	"	"	"	"	"	"	"	"	"
Auto Turner	1	0.0071	7	20	20 ✓	100	"	"	"	"
" Cooling Pump	1	0.0032	1	16	6	100	"	"	"	"
Compressor	1	0.0071	7	20	10	80	"	"	"	"
Compressor Pump	1	0.0032	1	16	8	80	"	"	"	"
" Heater	1	0.1527	150 ✓	20 ✓	160 ✓	240	Paper	"	"	"

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.

C. Mardu.

Electrical Engineers.

Date

COMPASSES.

Distance between electric generators or motors and standard compass 64 ft for generator; 24 ft for wireless motor
Distance between electric generators or motors and steering compass 72 " " , 32 " "

The nearest cables to the compasses are as follows :—

A cable carrying 0.2 Ampères 6 feet from standard compass 14 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

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.

P. V. Kar

Builder's Signature.

Date

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 and approved plans. The materials and workmanship are good. On completion the installation was tested under full working conditions and found to be efficient and reliable, in my opinion, for the use of Electric Light

It is submitted that
this vessel is eligible for
THE RECORD
Electric Light
5/9/33

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

Total Capacity of Generators 419 Kilowatts.

add fee per Kwh. 172
The amount of Fee Year 852.- When applied for,
When received,

Travelling Expenses (if any) £ included in Hull Report. 26/10/33

R. J. Morrison
Surveyor to Lloyd's Register of Shipping.

Committee's Minute TUE. 12 SEP 1938

FRI. 29 SEP 1938

Assigned

Elec. Light



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Foundation