

AUG -2 1930

Rpt. 13.

No. 2369

# REPORT ON ELECTRIC FITTINGS.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

Received at London Office

AUG -2 1930

Date of writing Report 25th May 1938 When handed in at Local Office 25th May 1938 Port of SHIMONOSEKI

No. in Survey held at NAGASAKI Date, First Survey 23rd Oct. 37 Last Survey 10th May 1938

Reg. Book. 37414 on the Single Screw Steamer "TENRYU MARU" (Number of Visits See Machy. Rpt.)

Tons { Gross 2,193.50  
Net 1,158.41

Built at Nagasaki By whom built Kawaminami Kogyo K.K. Koyagijima Zosensho Yard No. 106 When built 1938

Owners Kawaminami Kogyo Kabushiki Kaisha. Port belonging to Osaka

Electric Light Installation fitted by Kawaminami KK. Koyagijima Zosensho. Contract No. / When fitted 1938

Is the Vessel fitted for carrying Petroleum in bulk No

System of Distribution Two Conductor Insulated. ✓

Pressure of supply for Lighting 225 volts, Heating / volts, Power 225 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 No ✓, 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 Starb. side, 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 Starb. side, Engine Room, aft, 2nd Deck Level.

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 No ✓, 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 For Generator D.P.

Knife switch, D.P. fuse and S.P. overload circuit breaker. For outgoing circuit D.P. D.Th.

knife switch and D.P. fuse.

Instruments on main switchboard 3 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 Change switch and

V.M.

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 and twin. 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 4% ✓

**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 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 Supported by strong metal clips and protected by galvanized iron sheet or steel tube 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 Junction boxes fitted, part wood & part steel where exposed, insulated with special Vulcanite Fibre base and protected by asbestos linings. ✓

**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 Wireless Sender & received 14.25m/m<sup>2</sup> (arrester switch fitted).

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 in Pilot House ✓, has each navigation lamp an automatic indicator as per Rule Yes ✓

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

**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 Strong glass bowls protected by metal guards. ✓, are any fittings placed in spaces where inflammable or explosive dust or gases are liable to be present, if so, how are they protected No ✓, how are the cables led /, where are the controlling switches situated /

**Searchlight Lamps,** No. of 2, Projector Type, whether fixed or portable Fixed ✓, are their fittings as per Rule Yes ✓

**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 No ✓

**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	RATED AT				DRIVEN BY	WHERE DRIVEN BY AN INTERNAL COMBUSTION ENGINE.	
		Kilowatts.	Volts.	Amps.	Rev. per Min.		Fuel Used.	Flash Point of Fuel.
MAIN	1	15	225	66.7	450	Steam engine	-	-
AUXILIARY	1	6	225	26.7	500	" "	-	-
EMERGENCY								
ROTARY TRANSFORMER	1	0.8 KVA	100	8	3750	Electric Motor		
	1	0.15 KVA	100	1.5	3750	" "		

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 Circuit.	Rule.				
MAIN GENERATOR	1	28.7	19	1.6	66.7	83	98	Rubber	L.C & A.	
EQUALISER CONNECTIONS										
AUXILIARY GENERATOR	1	14.25	7	1.6	26.7	46	79	"	L.C & A.	
EMERGENCY GENERATOR										
ROTARY TRANSFORMER MOTOR	2	14.25	7	1.6	13	46	120	"	L.C.	
GENERATOR	2	"	"	"	81.5	46	180	"	"	
ENGINE ROOM	1	20.8	1	"	3.83		30	"	L.C & A.	
BOILER ROOM	1	"	1	"	3.9	12.9	30	"	"	
AUXILIARY SWITCHBOARDS										
New indicator	1	"	1	"	0.91	12.9	185	"	L.C & A.	
Wheel house	1	2.69	7	0.7	4.2	16	184	"	"	
Bridge deck	1	"	7	"	3.6	"	116	"	"	
Upper deck	1	"	7	"	2.8	"	98	"	"	
Upper deck	1	4.52	7	0.9	2.6	24	59	"	"	
Upper deck post-ak	1	2.08	1	1.6	2.58	12.9	98	"	L.C.	
Bridge deck	2	"	1	"	2.12	"	46	"	"	
Upper deck	2	"	1	"	2.00	"	46.5	"	"	
Upper deck, aft.	1	"	1	"	2.75	"	250	"	L.C & A.	
" " fore.	1	"	1	"	1.92	"	334	"	"	
WIRELESS	1	14.25	7	1.6	30	46	154	"	"	
SEARCHLIGHT	1	2.69	7	0.7	4.55	15.5	80	"	L.C.	
MASTHEAD LIGHT	1	2.08	1	1.6	0.182	12.9	242	"	L.C & A.	
SIDE LIGHTS	1	"	1	"	"	"	57.5	"	"	
COMPASS LIGHTS	1	"	1	"	"	"	23	"	"	
POOP LIGHTS	1	"	1	"	0.27	"	345	"	"	
CARGO LIGHTS	1	4.52	7	0.9	15.6	24	136	"	"	
ARC LAMPS										
HEATERS										

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										
GENERAL SERVICE PUMP										
EMERGENCY BILGE PUMP										
SANITARY PUMP										
CIRC. SEA WATER PUMPS										
CIRC. FRESH WATER PUMPS										
AIR COMPRESSOR										
FRESH WATER PUMP										
ENGINE TURNING GEAR										
ENGINE REVERSING GEAR										
LUBRICATING OIL PUMPS										
OIL FUEL TRANSFER PUMP										
WINDLASS										
WINCHES, FORWARD										
WINCHES, AFT										
STEERING GEAR—										
(a) MOTOR GENERATOR										
(b) MAIN MOTOR										
WORKSHOP MOTOR										
VENTILATING FANS										
Ref. Machine	2	1	14.25	7	1.6	30	45	33	Rubber	L.C & A.

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.

*J. Shinohara* Electrical Engineers. Date JUN 22 1938  
 General Manager

COMPASSES.

Distance between electric generators or motors and standard compass Froms Generator 82'-0 from Motor 72'-0 from Wir.M.70'-0.

Distance between electric generators or motors and steering compass " " 76'-0 " " 66'-0 " " 70'-0.

The nearest cables to the compasses are as follows :-

A cable carrying .18 Ampères 3'-6 feet from standard compass 4'-0" feet from steering compass.

A cable carrying .18 Ampères 10'-0 feet from standard compass 5'-6" feet from steering compass.

A cable carrying .18 Ampères 10'-0 feet from standard compass 3'-0" 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 All courses. course in the case of the standard

compass, and Nil degrees on All courses. course in the case of the steering compass.

*J. Shinohara* Builder's Signature. Date JUN 22 1938  
 General Manager.

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.)

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

Full load & overload tests have been carried out with satisfactory results.

Temperature tests were carried out on switchboards, also 200 Volts A.C. tests and Megger test with satisfactory results.

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

Note:- When vessels name was changed the 3 K.W. Emergency generator, switch boards & wiring were removed. The cables in the accomodations spaces amidships and in poop space are led attached to wood grounds behind the wood panels, and are not exposed or readily accesible. This method was approved by the U.S.S.R. representatives.

*Noted  
 Mm  
 5.8.38*

Total Capacity of Generators 21 Kilowatts.

The amount of Fee ...	£ <u>24-7-6</u>	:	When applied for,	<u>7. 7. 38</u>
Travelling Expenses (if any) £	:	:	When received.	<u>9. 12. 38</u>

*For Mr. H. D. Buchanan  
 & Self. R. Suddart.*  
 Surveyor to Lloyd's Register of Shipping.

Committee's Minute TUE. 9 AUG 1938

Assigned See F.E. mch. Pkt.

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

