

Rpt. 13.

No. 47778

REPORT ON ELECTRICAL EQUIPMENT.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

Received at London Office

Date of writing Report April 30 1947 When handed in at Local Office April 30th 1947 Port of NEW YORK

No. in Survey held at Brooklyn, N.Y. Date, First Survey March 24th Last Survey April 18th 1947

Reg. Book 89339 (Number of Visits 6)

76955 on the S.S. "TRANQUEBAR" ex "KINGS POINT VICTORY" Tons { Gross 7604 Net 4549

Built at Baltimore, Md. By whom built Bethlehem Fairfield/ Yard No. When built 1945

Owner East Asiatic Corp of Copenhagen Port belonging to Copenhagen

Electric Light Installation fitted by - Contract No. - When fitted 1945

Is the Vessel fitted for carrying Petroleum in bulk. No

System of Distribution Three-Wire Direct Current

Pressure of supply for Lighting 120 volts, Heating 240 volts, Power 240 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. See General Remarks

Generators, do they comply with the requirements regarding temperature rise American Bureau of Shipping Requirements are they compound wound Stab shunt

are they over compounded 5 per cent. - if not compound wound state distance between each generator 8 Feet

If here 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

Have certificates of test results for machines under 100 kw. been submitted and approved - Have machines over 100 kw. been inspected by the Surveyors during manufacture and testing by A.B.S.

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 engine room first grating level Starboard side aft 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 In engine room on generator flat in fore & Aft Direction

Starboard 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 durable, non-ignitable non-absorbent materials Yes

is all insulation of high dielectric strength and of permanently high insulation resistance Yes is it of an approved type 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. - is the non-hygroscopic insulating material of an approved type Yes and is the frame effectively earthed Yes

Are the fittings as per Rule regarding spacing or shielding of live parts Main switchboard Yes

accessibility of all parts Yes absence of fuses on back of board Emerg. No temperature rise of omnibus bars Yes individual fuses to voltmeter, pilot or earth lamp Yes are moving parts of switches alive in the "off" position No are all screws and nuts securing connections effectively locked Yes are any fuses fitted on the live side of switches No

Main Switchgear, description of switchgear for each generator and each outgoing circuit, and arrangement of equalizer switches, isolating links. Emergency generator: 3 Pole linked circuit breaker with overload trips.

Outgoing circuits: Two and three pole linked circuit breakers: Emerg. circuits 2 & 3 pole linked switches and fuses

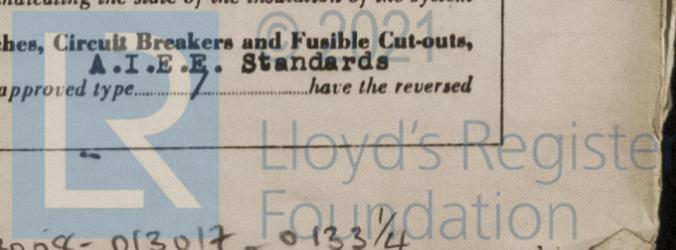
Are turbine driven generators fitted with emergency trip switch as per rule Yes Are cupboards or compartments containing switchboards composed of fire-resisting material or lined with approved material Yes Instruments on main switchboard 4 ammeters 2 volt-meters - synchronizing device for paralleling purposes. For compound machines is the ammeter connected on the opposite pole to equalizer connection

Earth Testing, state what means are provided at the main switchboard for indicating the state of the insulation of the system

Ground Lamps and Switch A.I.E.E Standards Switches, Circuit Breakers and Fusible Cut-outs, A.I.E.E. Standards

do these comply with the requirements of the Rules are the fusible cutouts of an approved type have the reversed

End
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current protection devices been tested under working conditions **Yes** Joint Boxes, Section and Distribution Boards, is the construction, protection, insulation, material, and position of these as per rule **Yes** **A.I.E.E. Standards**

Cables: Single, twin, concentric, or multicore **Yes** are the cables insulated and protected as per Tables IV, V, X or XI of the Rules **A.I.E.E. Standards**
If the cables are insulated otherwise than as per Rule, are they of an approved type **Yes** Fall of Pressure, state maximum between bus bars and any point of the installation under maximum load **3.5 volts** Cable Sockets, are the ends of all cables having a sectional area of 0.04 square inch and above provided with soldering sockets **Yes** Paper Insulated and Varnished Cambric Insulated Cables.

If conductors are paper or varnished cambric insulated, is the dielectric at the exposed ends of the conductor protected from moisture by being suitably sealed with insulating compound **-** or waterproof insulating tape **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** Are cables in machinery spaces, galleys, laundries, bathrooms and lavatories lead covered or run in conduit **Lead covered**

Support and Protection of Cables, state how the cables are supported and protected **Main cables clipped to steel hangers in hold spaces, clipped to bulkheads in accomodation**

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 **A.I.E.E. spacing**

Refrigerated Chambers, are the cables and fittings in accordance with the special requirements **Yes**

Joints in Cables, state if any, and how made, insulated, and protected **In junction boxes.**

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 and steel**

Earthing Connections, state what earthing connections are fitted and their respective sectional areas **Neutral connection grounded Through breaker with current limiting resistance in parallel with this breaker**
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 **Boat deck port side midships Diesel driven emergency generator automatically started in case of voltage failure on the main bus.**

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 **-**

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 **-**

are any fittings placed in spaces where inflammable or explosive dust or gases are liable to be present, if so, how are they protected **-**

**In Battery Room
Steel Hangers**

where are the controlling switches situated **Outside the compartment:**

are all fittings suitably ventilated **Yes** are all switches and lampholders constructed wholly of non-ignitable, non-absorbent materials **Yes**

Heating and Cooking Appliances, are they constructed and fitted as per Rule **-** are air heaters constructed and fitted as per Rule **-**

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

Are Lamps, other than searchlight lamps, No. of **-** are their live parts insulated from the frame or case **-** are their fittings as per Rule **-**

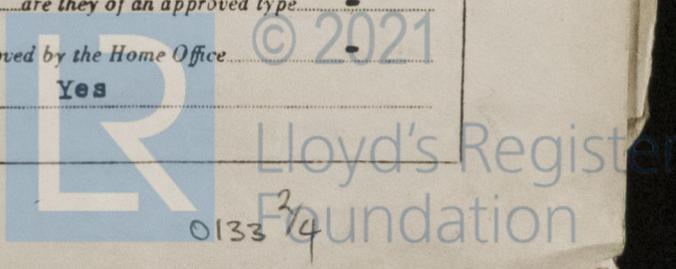
Motors, are their working parts readily accessible **Yes** are the coils self-contained and readily removable for replacement **Yes** are the brushes, brush holders, terminals and lubricating arrangements as per Rule **Yes** are the motors placed in well-ventilated compartments in which inflammable gases cannot accumulate and clear of all inflammable material **Yes** where possible are they protected from mechanical injury and damage from water, steam or oil **Yes** are their axes of rotation fore and aft **/** 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 **Drip proof & totally enclosed**

if not of this type, state distance of the combustible material horizontally or vertically above the motors **-** and **-**

have machines of over 100 BPH been inspected by the Surveyors during manufacture and testing **-** Control Gear and Resistances, are the generator field and motor speed regulators, starters and controllers constructed and fitted as per Rule **A.I.E.E. Standards** 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 **-** are all fuses of the filled cartridge type **-** are they of an approved type **-**

If portable lamps for use in dangerous spaces are supplied, are they of a self-contained, battery-fed type approved by the Home Office **Yes**

Spare Gear, if the vessel is for open sea service have spares been supplied as per Rule **Yes**



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PARTICULARS OF GENERATING PLANT.

DESCRIPTION OF GENERATOR.	No. of	RATED AT				DRIVEN BY	WHERE DRIVEN BY AN INTERNAL COMBUSTION ENGINE	
		Flt. Wt.	Volt.	Amps.	R.P.M.		Fuel Used.	Flash Point of Fuel.
MAIN	2	300	240/120	1250	1200	Geared Turbine	-	-
AUXILIARY ...								
EMERGENCY ...	1	15	240/120	62.5	1450	Diesel Engine	Diesel Oil	Above 150° F.
ROTARY TRANSFORMER								

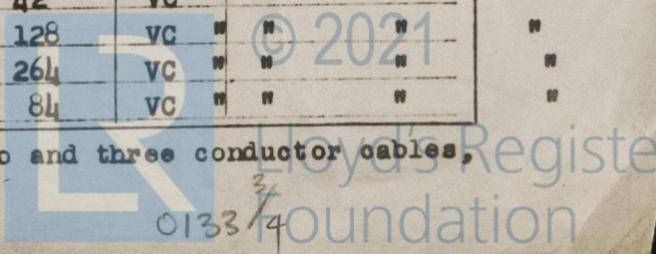
GENERATOR, LIGHTING AND HEATING CONDUCTORS.

DESCRIPTION.	CONDUCTORS		COMPOSITION OF STRAND		TOTAL MAXIMUM CURRENT AMPERES A.I.E.E.			Approximate Length (Lead and Return) Feet.	Insulated with	HOW PROTECTED
	No. per Pole	Total Nominal Area per Pole Sq. Ins.	No.	Diameter.	In Circuit.	Rule.				
MAIN GENERATOR Neutral	3	.8235	37	.097	1250	1251	50	V.G. L.C.	& BASKET WEAVE ARMoured	
MAIN CONNECTIONS	1	.1969	37	.082	-	333	35	" "	" "	
AUXILIARY GENERATOR										
EMERGENCY GENERATOR P27	1	.052	7	.097	62.5	99 ^x	30	V.C.	L.C. & Basket Weave Armored	
ROTARY TRANSFORMER (GENERATOR)										
Boiler Ltg L.1	1	.0206	7	.061	50	55.5 ^x	-	V.C.	LC & Basket Weave Armoured	
Shore Conn	2	.4712	37	.090	-	752	210	V.C.	" " " "	
Emergency Switchboard P27	1	.0658	19	.066	100	117 ^x	228	V.C.	" " " "	
Cargo holds Fwd Ltg L.1	1	.052	7	.097	70	99 ^x	-	V.C.	" " " "	
" " Aft Ltg L.3	1	.020	7	.061	50	55.5 ^x	-	V.C.	" " " "	
Crew Qrts Aft Ltg L.4	1	.008	7	.038	20	23 ^x	-	S.R.	" " " "	
Acc. main dk Ltg L.5A	1	.052	7	.097	90	99 ^x	-	V.C.	" " " "	
" " Ltg L.5B	1	.052	7	.097		99 ^x	-	V.C.	" " " "	
Boat Dk. ACCOMMODATION L.6A	1	.032	7	.077	70	75 ^x	-	V.C.	" " " "	
Acc. cabin Dk. L.6B	1	.032	7	.077		75 ^x	-	V.C.	" " " "	
Test panel P26	1	.0658	19	.066	100	117 ^x	164	V.C.	" " " "	
Refrig. control panel P16	1	.0032	7	.024	15	11.5 ^x	40	S.R.	" " " "	
WIRELESS ... P28	1	.052	7	.097	70	99 ^x	270	V.C.	" " " "	
SEARCHLIGHT ...	1	.0032	7	.024	5	11.5 ^x	-	S.R.	" " " "	
MASTHEAD LIGHT ...	1	.0032	7	.024	.4	11.5 ^x	360	S.R.	" " " "	
SIDE LIGHTS ...	1	.0032	7	.024	.4	11.5 ^x	80	S.R.	" " " "	
COMPASS LIGHTS										
Degaussing										
Galley Lights P18	1	.0658	19	.066	50	117 ^x	220	V.C.	" " " "	
Aux power panel	1	.013	7	.048	10	41 ^x	400	V.C.	" " " "	
Aux power panel	1	.013	7	.048	11	41 ^x	400	V.C.	" " " "	

MOTOR CONDUCTORS.

DESCRIPTION.	No. of Motors.	CONDUCTORS		COMPOSITION OF STRAND		TOTAL MAXIMUM CURRENT AMPERES A.I.E.E.			Approximate Length (Lead and Return) Feet.	Insulated with	HOW PROTECTED
		No. per Pole	Total Nominal Area per Pole Sq. Ins.	No.	Diameter.	In Circuit.	Rule.				
BALLAST PUMP ...											
MAIN BILGE LINE PUMPS											
GENERAL SERVICE PUMP											
EMERGENCY BILGE PUMP											
SANITARY PUMP	1	1	.013	7	.048	30	41 ^x	140	VC	LC & Basket Weave Armoured	
Main Circ. SEA WATER PUMPS P10	1	1	.3148	37	.104	370	456	228	VC	" " " "	
Eng. Rm. Aux. Pumps P11	8	1	.104	19	.083	106	158 ^x	248	VC	" " " "	
Nos. 1 & 2 (each) AIR COMPRESSOR P30 & 33	1	1	.032	7	.077	59	75 ^x	168	VC	" " " "	
2-FRESH WATER PUMP (each)	1	1	.0032	7	.024	4	11.5 ^x	100	SR	" " " "	
ENGINE TURNING GEAR	1	1	.013	7	.048	40	41 ^x	100	VC	" " " "	
Qrts Ventilation ENGINE ROOM GEAR P17	5	1	.020	7	.061	25	55.5 ^x	140	VC	" " " "	
LUBRICATING OIL PUMPS P13	1	1	.032	7	.077	59	75 ^x	204	VC	" " " "	
OIL FUEL TRANSFER PUMP											
WINDLASS ... P 23	1	1	.104	19	.083	220	219	600	VC	" " " "	
Feeders (each) WINCHES, Forward P. 20	4	1	.3148	37	.104	450	456	306	VC	" " " "	
" Feeder P6	2	1	.104	19	.083	225	219	204	VC	" " " "	
Capstan											
Wench-App ... P2	1	1	.104	19	.083	132	158 ^x	532	VC	" " " "	
Eng. Rm. Exh. Fan P9	1	1	.013	7	.048	21	41 ^x	240	V.C.	" " " "	
STEERING GEAR—											
(a) MOTOR GENERATOR (each) P14 & (b) MAIN MOTOR P15	1	1	.104	19	.083	150	158 ^x	450	VC	" " " "	
Feeder WORKSHOP MOTORS P12	2	1	.020	7	.061	25	55.5 ^x	164	VC	" " " "	
Eng. Rm. VENTILATING FAN (each) P28	1	1	.032	7	.077	50	75 ^x	300	VC	" " " "	
2-Winches (each)	1	1	.1045	19	.083	187	219	90	VC	" " " "	
Aux. Cond. pump P32	1	1	.008	7	.038	21	23 ^x	104	SR	" " " "	
" Circ. pump P 31	1	1	.0658	19	.066	95	117 ^x	42	VC	" " " "	
Main cond. pump P29	1	1	.032	7	.077	59	75 ^x	128	VC	" " " "	
Lifebt. Winches P24	1	1	.013	7	.048	40	41 ^x	264	VC	" " " "	
2-Ships Refrig. Comp. (Ea) P14 & P15	1	1	.013	7	.048	30	41 ^x	84	VC	" " " "	

X American Institute of Electrical Engineers Current Rating for two and three conductor cables, table No.9.



Tranquebar

All Conductors are of annealed copper conforming to British Standard Specification No. 7 (or International Electro-technical Commission Publication No. 28).

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

The foregoing is a correct description.

Electrical Engineers.

Date

COMPASSES.

Distance between electric generators or motors and standard compass 65 Feet

Distance between electric generators or motors and steering compass 60 feet

The nearest cables to the compasses are as follows:—

A cable carrying .125 Ampères .75 feet from standard compass .75 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 Nil degrees on Any course in the case of the standard compass, and Nil degrees on Any course in the case of the steering compass.

Builder's Signature.

Date

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.)

Classing

The electrical installation to the requirements of the American Bureau of Shipping has been in operation since 1945. The plans available have been examined and found to be in accordance with A.I.E.E. Marine Standards and generally in accordance with the Rules except as noted hereafter.

Three of the winch branch circuits each comprising of four winches are directly connected to the feeder cables without further protection at the branch thereof, but no exception has been taken to this, as each of the winch cables has a current carrying capacity of 48% of the feeder cable, and the feeder cable a diversity factor of 61% of the total connected load of the winch motors, also the breaker protecting feeder cable has the overload trip set at the current rating of cable. The dimensions in the Report have been taken from the A.B.S. approved plans. These dimensions have been checked as far as possible on the ship and found correct.

The materials and workmanship are good and the installation has been examined under working conditions and found to be satisfactory except for the following;

- 1) Main generators automatic governors should be tested throwing the full load on and off.
2) Electric wiring in hold spaces to have metal guards installed for protection against mechanical damage.

In our opinion the electrical installation is such as could be accepted by the Committee for Classification, subject to the main generators governors being tested and found satisfactory and the electric wiring in hold spaces being protected from mechanical damage by sheet metal guards at the earliest convenience.

Total Capacity of Generators 615 Kilowatts.

The amount of Fee ... \$250.00

Traveling Expenses (if any) \$2.00

When applied for, June 18 1947
When received, 19

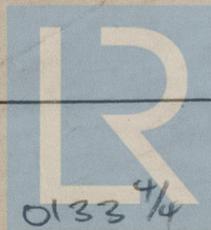
Bloomfield & H. G. Donald
Surveyor to Lloyd's Register of Shipping.

Committee's Minute

NEW YORK JUN 11 1947

Assigned Elec. light.

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



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