

Rpt. 13.

No. 8299

REPORT ON ELECTRICAL EQUIPMENT.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

23 FEB 1943

Date of writing Report 1 Nov 1942 When handed in at Local Office 10 Nov 1942 Port of Philadelphia
 No. in Survey held at Lechester Pa Date, First Survey 12 Aug Last Survey 30 Sept 1942
 Reg. Book. S/S MARKAY. (Number of Visits 5)
 Built at Lechester Pa By whom built Sum 837 DD Co Yard No. 232 When built 1942
 Owners Reystone Tankship Corp Port belonging to Wilmington Del
 Electric Light Installation fitted by Sum 837 DD Co Contract No. 232 When fitted 1942
 Is the Vessel fitted for carrying Petroleum in bulk Yes

Tons { Gross 10342
 Net

System of Distribution

Pressure of supply for Lighting 110 volts, Heating 110 volts, Power 200 volts.

Direct or Alternating Current, Lighting AC Power AC

If alternating current system, state frequency of periods per second 60.

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 temperature rise Yes, are they compound wound AC

are they over compounded 5 per cent. AC, if not compound wound state distance between each generator Yes

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

Have certificates of test results for machines under 100 kw. been submitted and approved Yes

Have machines over 100 kw. been inspected by the Surveyors during manufacture and testing 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 Aux machinery flat Sub 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 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 Near Main generators

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 Yes

and Yes, 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 Yes

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 accessibility of all parts Yes, absence of fuses on back of board Yes, 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

2 Main generators 1600 Amp 3 Pole ACB & 1600 Amp 3 pole DT line switch Aux gen 200 Amp ACB 200 ST line meter.

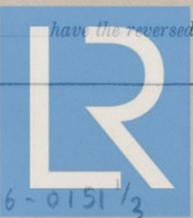
Are turbine driven generators fitted with emergency trip switch as per rule Yes Are cupboards or compartments containing switchboards composed of fire-resisting material or lined with approved material Yes

Instruments on main switchboard 3 ammeters 3

voltmeters 1 FREQ. METER synchronising device for paralleling purposes. For compound machines is the ammeter connected on the opposite pole to equaliser connection 1 SYNCHROSCOPE

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

Switches, Circuit Breakers and Fusible Cut-outs, do these comply with the requirements of the Rules Yes are the fusible cutouts of an approved type Yes



© 2020

Lloyd's Register Foundation

W 996-0151 1/3

current protection devices been tested under working conditions *Yes*

construction, protection, insulation, material, and position of these as per rule *Yes*

Cables: Single, twin, concentric, or multicore *See types* are the cables insulated and protected as per Tables IV, V, X or XI of the Rules *Yes*

If the cables are insulated otherwise than as per Rule, are they of an approved type *Yes*

any point of the installation under maximum load *3% Yes*

area of 0.04 square inch and above provided with soldering sockets *Yes*

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 *Yes*, or waterproof insulating tape *Yes*

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 on cable racks protected where necessary by cover plates or conduit*

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 *Yes*

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 *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 *None*

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 *None*

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 *None*

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 *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 *No*

where are the controlling switches situated *Yes*

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 *None*, are air heaters constructed and fitted as per Rule *None*

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

Arc Lamps, other than searchlight lamps, No. of *None*, are their live parts insulated from the frame or case *Yes*, 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*, 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 *No combustible material*

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

have machines of over 100 BHP been inspected by the Surveyors during manufacture and testing *Yes*, Control Gear and Resistances, are the generator field and motor speed regulators, starters and controllers constructed and fitted as per Rule *Yes*

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 *Yes*, are all fuses of the filled cartridge type *Yes*, are they of an approved type *Yes*

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*

Joint Boxes, Section and Distribution Boards, is the

Fall of Pressure, state maximum between bus bars and

Cable Sockets, are the ends of all cables having a sectional

Paper Insulated and Varnished Cambric Insulated Cables.

Cable Runs, are the cables fixed as far as possible in accessible positions

Supported on cable racks protected

where necessary by cover plates or conduit

are the cap screws of brass

are the cables run in

are the clips spaced as per Table VIII

are the cables and fittings in accordance with the special requirements

state if any, and how made, insulated, and protected

are all cables passing through decks and watertight bulkheads provided with deck tubes or watertight glands

state the material of which the bushes are made

state what earthing connections are fitted and their respective sectional areas

are their connections made as per Rule

Emergency Supply, state

position and method of control of the emergency supply and how the generator is driven

are the fuses double pole

are they constructed and fitted as per Rule

are they protected

how are the cables led

are all switches and lampholders constructed wholly of non-ignitable, non-absorbent materials

are air heaters constructed and fitted as per Rule

are their fittings as per Rule

are the coils self-contained and readily removable for replacement

are the motors placed in well-ventilated compartments in which

are they protected from mechanical injury and damage from

are their axes of rotation fore and aft

if situated near unprotected woodwork or other combustible

state distance of the combustible material horizontally or vertically above the motors

are the generator field and motor speed regulators, starters and controllers constructed and fitted as per Rule

Ships carrying Oil having a Flash Point less than 150° F. Have the special requirements of

protection of cables, method of distribution, lead of cables, lights and

are they of an approved type

approved by the Home Office

have spares been supplied as per Rule

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	2	400 each	220	1600	1200	Steam turbine		
AUXILIARY	1	50	"	200	"	"		
EMERGENCY								
STATIC ROTARY TRANSFORMER	3	12KVA	220±10					

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 Nominal Area per Pole Sq. Ins.	No.	Diameter.	Circuit.	Rule.			
MAIN GENERATOR	4	2.0	244	.103	1600	2160	60	VC	Lead & armoured
EQUALISER CONNECTIONS	4	2.0	244	"	"	"	70	"	"
AUXILIARY GENERATOR	1	.25	37	.093	200	343	"	"	"
MOTOR GENERATOR	1	.225	7	.064	42	75	30	"	"
ROTARY MOTOR GEN. TRANSFORMER	1	.025	7	"	"	"	"	"	"
ENGINE ROOM	1	.06	19	.064	32	135	900	"	"
BOILER ROOM	1	.0225	7	"	16	75	120	"	"
MIDSHIP LIGHTING	1	.06	19	"	75	135	900	"	"
GYRO. PILOT	1	.007	7	.036	9	28	120	"	"
ENGINE TELEGRAPH	1	.003	1	.064	3	10	60	RC	"
Boiler	1	.003	1	"	1	"	120	"	"
Boiler	1	.003	1	"	1	"	60	"	"
Aft quarter Upper deck	1	.06	19	"	38	135	210	VC	"
Accommodation Room	1	.0225	7	"	49	75	120	"	"
LEG TRANS. SECONDARY	1	.5	61	.103	400	540	50	"	"
DC distribution	1	.0225	7	.064	44	75	900	"	"
Gyro pilot	1	.007	7	.036	10	28	200	"	"
R.P.M. indicator	1	.003	1	.064	1	10	"	RC	"
WIRELESS									
SEARCHLIGHT									
MASTHEAD LIGHT									
SIDE LIGHTS									
COMPASS LIGHTS									
POOP LIGHTS									
CARGO LIGHTS									
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 Nominal Area per Pole Sq. Ins.	No.	Diameter.	In Circuit.	Rule.			
FIRE PUMP	1	1	.03	37	.103	250	385	210	VC	Lead & armoured
MAIN BILGE LINE PUMPS	1	1	.0225	7	.064	28	75	240	"	"
FORCED DRAUGHT PUMP	2	1	.05	37	.093	125	343	140	"	"
GENERAL SERVICE PUMP	1	1	.0645	7	.029	125	60	130	RC	"
PUMP ROOM VENT	1	1	.045	7	.062	22	37	150	VC	"
EMERGENCY DIBCE PUMP	1	1	.045	7	.062	22	37	150	VC	"
SANITARY PUMP	1	1	.045	7	.062	22	37	150	VC	"
CIRC. SEA WATER PUMPS	1	2	.6	74	.103	320	770	170	"	"
MOTOR WELL DRAIN	1	1	.0645	7	.029	3.5	10.5	110	RC	"
CARGO FRESH WATER PUMPS	1	1	.0645	7	.029	3.5	10.5	110	RC	"
AIR COMPRESSOR	1	1	.04	19	.052	40	104	220	VC	"
FRESH WATER PUMP	1	1	.0645	7	.029	3.5	10.5	230	RC	"
ENGINE TURNING GEAR	1	1	.0145	7	.012	22	17	160	VC	"
ATMOS. DRAIN PUMP	1	1	.007	7	.036	15	28	150	"	"
ENGINE REVERSE GEAR	1	1	.007	7	.036	15	28	150	"	"
LUBRICATING OIL PUMPS	2	1	.04	19	.052	40	104	220	"	"
MAIN CONDENSATE PUMP	2	1	.06	19	.064	12	135	150	"	"
SEA WATER TRANSFER PUMP	1	1	.1045	7	.029	6.4	10.5	260	RC	"
WINDLASS	1	1	.06	19	.064	12	135	170	VC	"
STEERING GEAR	2	1	.06	19	.064	12	135	170	VC	"
WINCHES, FORWARD	2	1	.06	19	.064	12	135	170	VC	"
FUEL OIL SERVICE	2	1	.0225	7	.064	28	75	140	"	"
WINCHES, AFT TRANSFER	1	1	.12	37	.064	100	210	170	"	"
VENTILATING FANS	5	1	.0145	7	.052	11.5	17	680	"	"
GALE POWER	4	1	.3	37	.103	27.5	385	210	"	"
WASH WATER	1	1	.0645	7	.029	3.5	10.5	170	RC	"
WATER PUMP	1	1	.0645	7	.029	3.5	10.5	170	RC	"
REFRIG. COMP. MOTOR	1	1	.0045	7	.029	2	10.5	170	RC	"
REFRIG. COMPRESSOR	1	1	.0145	7	.052	19	57	170	VC	"
WATER PUMP	1	1	.0645	7	.029	3.5	10.5	170	VC	"
RADIO	1	1	.0225	7	.064	15	75	425	"	"
AUX. CON. CIRC.	1	1	.12	37	.064	100	210	160	"	"
AUX. CONDENSATE	1	1	.0145	7	.052	22	57	170	"	"
MACHINE SHOP	1	1	.0225	7	.064	28	75	180	"	"
LTS. TRANS. PRIMARY	1	1	.2	37	.083	130	246	60	"	"
MAIN CARGO PUMPS	1	2	.5	74	.093	480	686	140	"	"

S/S MARKAY

Bureau of Shipping

The results of tests comply with the U.S. Government requirements although they do not comply with the Society's Rules in some respects. As the overspeed & overload tests have proven satisfactory, it is respectfully recommended that these two 400 KW sets be accepted by the Committee.

Attached please find letter received from the Westinghouse E.M. Co. regarding shop tests on motors used for essential services at sea.

W.R.P.

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.

J.M. Jackson

Electrical Engineers.

Date 10/27/42

COMPASSES.

Distance between electric generators or motors and standard compass 300 ft

Distance between electric generators or motors and steering compass 300 ft

The nearest cables to the compasses are as follows:-

A cable carrying 10 Ampères 6 feet from standard compass 6 feet from steering compass.

A cable carrying 3/10 Ampères 7 feet from standard compass 7 feet from steering compass.

A cable carrying 1/2 Ampères 9 feet from standard compass 9 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 0 degrees on All course in the case of the standard compass, and 0 degrees on All course in the case of the steering compass.

J.M. Jackson

Builder's Signature.

Date 10/27/42

Is this installation a duplicate of a previous case? Yes If so, state name of vessel S/S SEAKAY

General Remarks (State quality of workmanship, opinions as to class, etc.) The U.S. Maritime Commission ordered

this vessel to be built under the rules & with the Classification of the American Bureau of Shipping. After the work was well advanced the Managing Owners made special arrangements to have this Society's Classification as well.

AC electrical equipment was decided upon for this whole class of U.S. tankers: this is allowed under U.S. Government rules.

It is recommended that this be accepted in this instance.

The electrical installation was fitted & tested under our supervision with satisfactory results, the workmanship & materials are good.

Plans could not be obtained until the vessel was completed, these are forwarded herewith.

Regarding forms 7b for the alternators, the Pittsburgh Surveyors state that the tests on these were witnessed by the Surveyors to the American

Please see Continuation sheet

Total Capacity of Generators 850 Kilowatts.

The amount of Fee \$100.00 to Agreed. Travelling Expenses (if any) £

When applied for, 30th Nov. 1942. When received, 19

W. R. P. Surveyor to Lloyd's Register of Shipping.

Committee's Minute

NEW YORK JAN 13 1943

Assigned Elec. Dept.