Rpt. 13.

No. 48384

REPORT ON ELECTRICAL EQUIPMENT.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

Received at London Office 10 MAY 1948

Date of writing Report March 31st, 19 48 When handed in at Local Office March 31st, 19 48 Port of NEW YORK

No. in Survey held at Brooklyn, N.Y. Date, First Survey March 17th Last Survey March 27th 19 48 (Number of Visits 3)

Reg. Book. 28601 on the S.S. "ESSO BRETAGNE" ex "MONTEZUMA CASTLE" Tons { Gross 10448 Net 6301

Built at Portland, Ore. By whom built Kaiser Co. Inc. Yard No. 87 When built 1944

Owners Government De La Republique Francaise Port belonging to Le Havre

Electric Light Installation fitted by - Contract No. - When fitted 1944

Is the Vessel fitted for carrying Petroleum in bulk Yes

System of Distribution Alternating Current 3 Phase 3 Wire

Pressure of supply for **Lighting** 115 volts, Cooking 230 volts, **Power** 450 volts,

Direct or Alternating Current, Lighting Alternating **Power** Alternating

If alternating current system, state frequency of periods per second 60 Cycles / 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 A.I.E.E. Standards, are they compound wound 55 KWs Exciters Only

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

Where more than one generator is fitted are they arranged to run in parallel Yes 400 KWs Sets, is an adjustable regulating resistance fitted in series with each shunt field of Exciters 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 Star. 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 In 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, 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 A.I.E.E. Standards, accessibility of all parts A.I.E.E. Standards, absence of fuses on back of board Yes, temperature rise of omnibus bars A.I.E.E. Standards, 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 400 KWs. Generators: Three pole linked Circuit Breakers with overloads and Reverse Power Trips and Three pole Isolating Switches. 55 KWs. Exciters: D.P. linked Breakers with overloads and Selector Switch. 75 KWs. Exciters D.P.D.T. Switch. Outgoing Circuits: Two and Three pole linked Circuit Breakers.

Are turbine driven generators fitted with emergency trip switch as per rule -- Are cupboards or compartments containing switchboards composed of fire-resisting material or lined with approved material Yes **Instruments** on main switchboard 7 ammeters 5 voltmeters 1 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 Earth Lamps **Switches, Circuit Breakers and Fusible Cut-outs,** do these comply with the requirements of the Rules A.I.E.E. Standards are the fusible cutouts of an approved type A.I.E.E. Standards have the reversed

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current protection devices been tested under working conditions See general remarks **Joint Boxes, Section and Distribution Boards,** *is the construction, protection, insulation, material, and position of these as per rule* 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* -- **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 Feeder Cables Lead Covered and Basket Weave Armoured run in Conduit on Deck supported by Straps under Fore and Aft Walkway. Cables in Accommodation and Engine Room clipped to Brackets and Bulkheads. Main Propulsion Cables supported on Cleats.

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. Standards

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 Bushes and Steel Collars

Earthing Connections, *state what earthing connections are fitted and their respective sectional areas* Cables Effectively earthed.

, *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* Diesel driven emergency generator fitted port side, poop deck level, which can be connected to the main bus bars through a contactor interlocked with the two 400 Kws. Generator sets.

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* Wheelhouse *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 Bulkhead Fittings in Pump Rooms, *how are the cables led* Outside the Compartments *where are the controlling switches situated* Outside the Compartments *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* A.I.E.E. Standards /, *are air heaters constructed and fitted as per Rule* --

Searchlight Lamps, No. of 1, *whether fixed* ~~xxxxxx~~ Yes, *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* A.I.E.E. Standards /, *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* Where Possible, *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* Yes *are all fuses of the filled cartridge type* Yes *are they of an approved type* A.I.E.E. Standards /

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

Spare Gear, *if the vessel is for open sea service have spares been supplied as per Rule* See general remarks.

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PARTICULARS OF GENERATING PLANT.

DESCRIPTION OF GENERATOR.	No. of	RATED AT Kilowatts.	Volts.	Amperes.	Revs. per Min.	DRIVEN BY	WHERE DRIVEN BY AN INTERNAL COMBUSTION ENGINE. Fuel Used.	Flash Point of Fuel.
Main	2	400	450	642	1200	Steam Turbine	--	--
Exciters ...	2	75	110	682	1200	" "	--	--
Exciters ...	2	55	120	458	1200	" "	--	--
Emergency	1	75	450	120.5	-	Diesel Engine	Diesel Oil	Above 150°F.
Rotary Transformer								

GENERATOR, LIGHTING AND HEATING CONDUCTORS.

DESCRIPTION.	CONDUCTORS. No. per Pole.	CONDUCTORS. Total Nominal Area per Pole Sq. Ins.	COMPOSITION OF STRAND. No.	COMPOSITION OF STRAND. Diameter.	TOTAL MAXIMUM CURRENT. AMPERES. Circuit.	AMPERES. AIEE Rule.	Approximate Length. (Lead and Return.) Feet.	Insulated with	HOW PROTECTED
Main Generators	1	.7854	61	.128	642	864	--	V.C.	L.C. & Basket Weave Armoured
75 KWs Exciters ...	1	.7854	61	.128	682	864	--	"	" " "
55 KWs Exciters	1	.5890	61	.110	458	705	--	"	" " "
Auxiliary Generator	1	.1045	19	.083	120.5	158[x]	--	"	" " "
Emergency Generator									
Motor 2300/450 Volts Transformers	1	.1318	19	.094	151	185[x]	--	"	" " "
Engine Room ... ... L.6 ...	1	.0521	7	.097	70	99[x]	--	"	" " "
Boiler Room ... ... L.7 ...	1	.0206	7	.061	35	55.5[x]	--	"	" " "
Emergency Switchboards	1	.0829	19	.074	125	134[x]	--	"	" " "
440/230 Volts P.33 Galley Transformers	1	.0521	7	.097	58	99[x]	--	"	" " "
440 Volts Shore Conn. Box P.52	1	.5100	61	.103	400	466[x]	--	"	" " "
Midship & Focsle Ltg. L.3	1	.0829	19	.074	100	134[x]	--	"	" " "
Boat Dk. Qrts. Ltg. L.4	1	.0261	7	.068	50	65[x]	--	"	" " "
Upper Dk. Qrts. Ltg. L.5	1	.0521	7	.097	70	99[x]	--	"	" " "
Accommodation									
450/120 Volt Ltg. Transformers	1	.0521	7	.097	70	99[x]	--	V.C.	" " "
Navigation Ltg. L.E.1	1	.0082	7	.038	25	30[x]	--	"	" " "
Wireless	1	.0261	7	.068	50	65[x]	--	"	" " "
Searchlight 1000 W ...	1	.0051	7	.030	10	16.5[x]	--	R.I.	" " "
Masthead Light	1	.0032	7	.024	.45	11.5[x]	--	"	" " "
Side Lights	1	.0032	7	.024	.45	11.5[x]	--	"	" " "
Compass Lights	1	.0032	7	.024	.25	11.5[x]	--	"	" " "
Poop Lights									
Gyro Compass	1	.0082	7	.038	15	30[x]	--	V.C.	" " "
Galley Ranges ... ... (Each)	1	.0414	7	.086	55	88[x]	--	"	" " "
Bake Oven	1	.013	7	.048	24	41[x]	--	"	" " "

MOTOR CONDUCTORS.

DESCRIPTION.	No. of Motors.	CONDUCTORS. No. per Pole.	CONDUCTORS. Total Nominal Area per Pole Sq. Ins.	COMPOSITION OF STRAND. No.	COMPOSITION OF STRAND. Diameter.	TOTAL MAXIMUM CURRENT. AMPERES. In Circuit.	AMPERES. AIEE Rule.	Approximate Length. (Lead and Return.) Feet.	Insulated with	HOW PROTECTED
Ballast Pump ... ... P43-44 (Each)										
Main Bilge Line Pumps ...	1	1	.008	7	.038	14.5	30[x]	--	V.C.	L.C. & Basket Weave Armoured
General Service Pump										
Emergency Bilge Pump ...										
Sanitary Pump P.42 ...	1	1	.0051	7	.030	11	22[x]	--	"	" " "
Circ. Sea Water Pumps P.6	1	1	.2356	37	.090	150	279[x]	--	"	" " "
Circ. Fresh Water Pumps ...										
Air Compressor P.40 ... ... P31 & 32	1	1	.0051	7	.030	6.9	22[x]	--	"	" " "
Fresh Water Pump (Each)	1	1	.0051	7	.030	3	22[x]	--	"	" " "
Engine Turning Gear P.48	1	1	.0051	7	.030	4.5	22[x]	--	"	" " "
Engine Reversing Gear ... P20 & 21										
Lubricating Oil Pumps (Each)	1	1	.0051	7	.030	7.5	22[x]	--	"	" " "
Oil Fuel Transfer Pumps ... P18&19 (Each)										
" Serv. Pumps ...	1	1	.0051	7	.030	11	22[x]	--	"	" " "
Winches, Forward										
Winches, Aft										
Steering Gear—										
(a) Motor Generator ... P9 & 10										
(b) Main Motor (Each)	1	1	.0261	7	.068	46	65[x]	--	"	" " "
Workshop Motors P.11 ... Eng.Rm. (Each)	--	1	.0082	7	.038	10	30[x]	--	"	" " "
Ventilating Fans P.34&35 Qrts (Each)	1	1	.0051	7	.030	3	22[x]	--	"	" " "
Ventilation P27&28	1	1	.0051	7	.030	2.5	22[x]	--	"	" " "
Evap. Feed Pump P23, 24 & 25	1	1	.0051	7	.030	1.6	22[x]	--	"	" " "
Forced Dr. Fans (Each)	1	1	.0521	7	.097	64	99[x]	--	"	" " "
Lub.Oil Separator P22	1	1	.0051	7	.030	3	22[x]	--	"	" " "
Aux. Condensate Pump P15	1	1	.013	7	.048	20	41[x]	--	"	" " "

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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 26

Distance between electric generators or motors and steering compass 20

The nearest cables to the compasses are as follows:—

A cable carrying .25 *Ampères* .75 *feet from standard compass* .75 *feet from steering compass.*

A cable carrying 1 *Ampères* 6 *feet from standard compass* 4 *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 -

Has the effect of switching on and off circuits, motors and other electro-magnetic apparatus within the vicinity of the compasses been noted -

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.*

.....*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 1944. The plans attached hereto have been examined and found to be in accordance with A.I.E.E. Standards and generally in accordance with the Rules, except as noted hereafter. No overload or short circuit protection is provided on the 75 Kws exciters used in conjunction with the main propulsion units, but no exception has been taken to this. The dimensions in this report have been taken from the A.B.S. approved plans (attached hereto) verified as far as practical, and the machinery seen under working conditions with a view to classification with this Society on completion of Survey requirements. To complete survey the electrical equipment to be examined as prescribed for Periodical Special Survey and insulation resistance tests to be made on generators, motors, cables and other apparatus.

Total Capacity of Generators 1135 *Kilowatts.*

The amount of Fee ... ... $120.00 : When applied for, May 5 19 48

Traveling Expenses (if any) $2.00 : When received. .....19....

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

Committee's Minute NEW YORK APR 28 1948

Assigned Elec. Light

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

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	DESCRIPTION	No OF MOTORS	CONDUCTORS No PER POLE	CONDUCTORS TOTAL NOMINAL AREA PER POLE	CONDUCTORS No	CONDUCTORS DIAMETER	CIRCUIT	RULE	RETURN	WITH	HOW PROTECTED
2-	(Each) Stripping Pumps	1	1	.0521	7	.097	61	99 x	--	V.C.	L.C. & Basket Weave Armoured
3-	Cargo Pumps (Each	1	1	.3535	37	.110	243	367 x	--	"	" " "
	Aux. Circ. Pump P.14	1	1	.0261	7	.068	40	65 x	--	"	" " "
2-	P12&P13(Each)Main Condensate Pumps	1	1	.0206	7	.061	31	55.5 x	--	"	" " "
2-	Fwd.&Aft. (Each) Fire Pumps P7&P8	1	1	.0521	7	.097	60.5	99 x	--	"	" " "
2-	P36 & 37 (Each) Eng.Rm. Vent Fans	1	1	.0051	7	.030	3	22 x	--	"	" " "
	P.38 Refrig. Power	--	1	.0051	7	.030	20	22 x	--	"	" " "
	Refrig. Compr.	1	1	.0051	7	.030	9.8	22 x		"	" " "
	Refrig. Circ Pump	1	1	.0051	7	.030	1	22 x	--	"	" " "
	P.39 Atmos.Drain & Rec. Pump	1	1	.0051	7	.030	3	22 x	--	"	" " "
	P.41 Salt Water Pump	1	1	.0051	7	.030	11	22 x	--	"	" " "
	P.45 Aft. Drinking Water Pump	1	1	.0051	7	.030	1.6	22 x	--	"	" " "
	P.46 Drinking Water Pump	1	1	.0051	7	.030	1.6	22 x	--	"	" " "
	Sounding Machine	1	1	.0032	7	.024	1.6	11.5 x	--	R.I.	" " "
	P.47 Main Motor Cooling Fan	1	1	.013	7	.048	20	41 x	--	V.C.	" " "
	P.49 Shaft Turning Gear	1	1	.0051	7	.030	7.5	22 x	--	"	" " "
	P.51 Combustion Control	1	1	.013	7	.048	20	41 x	--	"	" " "
	P.54 Pump Rm. Exh. Blower	1	1	.0051	7	.030	2	22 x	--	"	" " "
	Lathe	1	1	.0051	7	.030	3	22 x	--	"	" " "
	Drill Press	1	1	.0051	7	.030	1.6	22 x	--	"	" " "
	Grinder	1	1	.0051	7	.030	4.5	22 x	--	"	" " "

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