

Rpt. 13.

No. 7654

REPORT ON ELECTRICAL EQUIPMENT.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

Date of writing Report 16th Apr. 1942 When handed in at Local Office 16th Apr. 1942 Received at London Office 23 JUN 1942
 Port of Baltimore, Maryland
 No. in Survey held at Baltimore, Maryland Date, First Survey 4 Dec. 1941 Last Survey 10th Feb. 1942
 Reg. Book. on the S.S. "CATAWBA" (Number of Visits 10)
 Tons { Gross 9930
 Net 5907
 Built at Sparrows Point, Md. By whom built Bethlehem Steel Co. Yard No. 4356 When built 1941
 Owners Socony-Vacuum Oil Co. Port belonging to New York, N. Y.
 Electric Light Installation fitted by Bethlehem Steel Co. (Shipbuilding Division) Contract No. 4356 When fitted 1942
 Is the Vessel fitted for carrying Petroleum in bulk Yes

System of Distribution 2 Wire

Pressure of supply for Lighting 120 V volts, Heating - volts, Power 240 V volts.

Direct or Alternating Current, Lighting D.C. Power D.C.

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 temperature rise Yes, are they compound wound Yes
 are they over compounded 5 per cent. (Per A.I.E.E. #45), 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

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 On Generator Flat 23'-9" Above Base Line, on Port Side of Ship, 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 Athwartship, on Generator Flat. (1) on Forward End, (1) on After End

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

omnibus bars Normal, 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

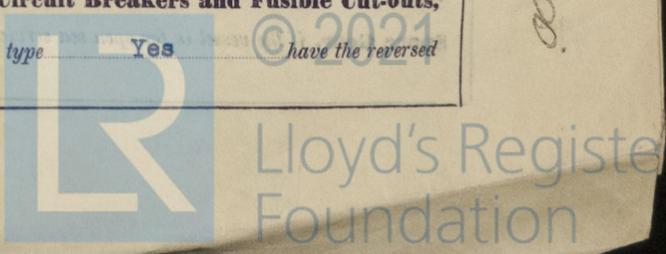
switches No Main Switchgear, description of switchgear for each generator and each outgoing circuit, and arrangement of equalizer switches Each generator has 2-pole air circuit breaker and 3-pole disconnect knife switch. Equalizer taken from each generator to centre blade of knife switch. Each outgoing circuit has fused knife switch or air circuit breaker.

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 Steel Encl. Instruments on main switchboard 3 ammeters 2

voltmeters 0 synchronising device for paralleling purposes. For compound machines is the ammeter connected on the opposite pole to equaliser connection Yes Earth Testing, state what means are provided at the main switchboard for indicating the state of the insulation of the system None Supplied

Earth 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 have the reversed

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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**

Cables: Single, twin, or multicore **Single, Twin & Multicore** 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 **240 - volt Bus - - - 8.8 Volts** Fall of Pressure, state maximum between bus bars and any point of the installation under maximum load **120 - volt Bus - - - 2.8 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, are they of an approved type **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 **Steel Hangers**

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, are the cables and fittings in accordance with the special requirements (as per A.I.E.E. #45) **None**

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 **None**

Earthing Connections, state what earthing connections are fitted and their respective sectional areas **None** 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 **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 **Yes**

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 **None**

Explosion Proof Fittings Amidship Center Castle Space **Yes** how are the cables led **Directly to Fixtures** where are the controlling switches situated **Outside the Space** are all fittings suitably ventilated **-**, 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 **Yes** are air heaters constructed and fitted as per Rule **-**

Searchlight Lamps, No. of **1**, whether fixed or portable **Fixed**, are their fittings as per Rule **A.I.E.E. #45**

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 **-**

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** Lighting Conductors, where lightning conductors are required, are these fitted as per Rule **None** 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 fitted cartridge type **A.I.E.E.** 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 **None Supplied**

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

PARTICULARS OF GENERATING PLANT.

DESCRIPTION OF GENERATOR	No. of	RATED AT			Revs. per Min.	DRIVEN BY	WHERE DRIVEN BY AN INTERNAL COMBUSTION ENGINE	
		Kilowatts	Volts	Amps.			Fuel Used.	Flash Point of Fuel
MAIN	2	300	240	1250	1200	Steam Turbine		
AUXILIARY	1	50	240	208	3600	Steam Turbine		
ROTORARY TRANSFORMER	2	25	120	208	1750	40 HP 230 V Motor		
	3	15	120	1000	1200	25 HP 230 V Motor		

DESCRIPTION	No. per Pole	CONDUCTORS		COMPOSITION OF STRAND		In Circuit.	Rule.	Approximate Length (Lead and Return.) Feet.	Insulated with	HOW PROTECTED.	
		Total Nominal Area per Pole SQ. IN.	No.	WT. LB.	Diameter						
MAIN GENERATOR	4	500 M	37	116.2	1250	1776	60			Var. Camb. A.C.B. @ 1560 A	
EQUALISER CONNECTIONS	2	500 M	37	116.2	208	280	60			" " A.C.B. @ 260 A	
AUXILIARY GENERATOR	1	250 M	37	82.2	208	280	90			" " Fuse 175 A	
ROTORARY TRANSFORMER GENERATOR	1	133 M	19	83.7	144	184	80			" " A.C.B. @ 260 A	
ENGINE ROOM	1	250 M	37	82.2	208	280	85			" " Fuse 100 A	
BOILER ROOM	1	83,700	19	66.4	78	134	95			" " Fuse 100 A	
DISTRIBUTION PANELS											
For ACCOMM. LTG.											
1 Navigating Lts.	1	10,400	7	38.5	3	25.5	610			Fuse 25 A	
2 Poop Quarters	1	133 M	19	83.7	135	184	185			Fuse 175 A	
3 Center Castle Qts.	1	212 M	19	105.5	88	251	626			Fuse 150 A	
4 Pump Rm. Lts. (Upper)	1	6530	7	30.5	5.7	18.5	200			Fuse 15 A	
" " " (Lower)	1	6530	7	30.5	5.2	18.5	120			Fuse 30 A	
5 Forec. Lts.	1	41700	7	77.2	10.2	84	900			Fuse 30 A	
WIRELESS	1	52600	7	86.7	15	74	660			Fuse 15 A	
SEARCHLIGHT (Br. of #3 above)	1	6530	7	30.5	8.7	18.5	90			Rubber Fuse 3 A	
MASTHEAD LIGHT	1	4110	7	24.2	.44	13	300			" " Fuse 10 A	
SIDE LIGHTS	1	4110	7	24.2	.44	13	40			" " Fuse 10 A	
COMPASS LIGHTS	1	4110	7	24.2	.44	13	40			" " Fuse 10 A	
POOP LIGHTS	See Poop Qt. (#2) Above									Var. Camb. Fuse 50 A	
CARGO LIGHTS	1	66400	7	97.4	27	83	430			Fuse 30 A	
Watchmeter	1	33100	7	68.8	10	54.5	620			Fuse 200 A	
1 DC Motor	1	83700	19	66.4	92	134	150			" " A.C.B. @ 450 A	
2 DC Motors	1	300000	37	90	184	316	150			" " A.C.B. @ 450 A	

DESCRIPTION	No. of Motors	CONDUCTORS		COMPOSITION OF STRAND		In Circuit.	Rule.	Approximate Length (Lead and Return.) Feet.	Insulated with	HOW PROTECTED.
		Total Nominal Area per Pole SQ. IN.	No.	WT. LB.	Diameter					
FORCED DRAFT BLOWERS	2	1	133 M	19	83.7	132	184	220		Var. Camb. Fuse 175 A
MAIN BILGE PUMP	1	1	33100	7	68.8	38	54.5	120		Fuse 50 A
FIRE AND SUBSERVITORY PUMP	1	1	500 M	37	116.2	302	444	100		A.C.B. @ 880 A
CONDENSATE PUMP	1	1	500 M	37	116.2	302	444	100		Fuse 70 A
MAIN CONDENSATE PUMP	2	1	52600	7	86.7	56.5	74	140		Fuse 30 A
CONDENSATE PUMP	1	1	16500	7	48.6	20	34.5	110		A.C.B. @ 800 A
SANITARY PUMP	1	2	500 M	37	116.2	625	888	124		Fuse 30 A
CIRC. SEA WATER PUMPS	1	2	500 M	37	116.2	625	888	124		Fuse 70 A
SALT WATER SERVICE PUMPS	1	1	16500	7	48.6	20	34.5	110		Fuse 15 A
FRESH WATER PUMPS	1	1	52600	7	86.7	55	74	70		Fuse 15 A
AIR COMPRESSOR	1	1	6530	7	30.5	4.6	18.5	166		Fuse 50 A
POTABLE WATER PUMP	1	1	33100	7	68.8	38	54.5	60		Fuse 50 A
ENGINE TURNING GEAR	1	1	33100	7	68.8	38	54.5	60		Fuse 125 A
AUXIL. CIRCUIT GEAR	1	1	33100	7	68.8	38	54.5	60		Fuse 125 A
LUBRICATING OIL PUMPS	2	1	83,700	19	66.4	92	134	160		Fuse 175 A
OIL FUEL TRANSFER PUMP	1	1	133 M	19	83.7	144	184	188		Fuse 50 A
OIL FUEL SER. PUMP	2	1	33100	7	68.8	38	54.5	160		Fuse 45 A
AUXIL. CONDENSATE PUMP	1	1	26300	7	61.2	30	46.5	70		Fuse 30 A
WATER PUMPS	1	1	16500	7	48.6	20	34.5	160		Fuse 15 A
REFRIGERATOR COMPRESSOR	1	1	16500	7	48.6	20	34.5	160		Fuse 15 A
EVAPORATOR FEED PUMP	1	1	6530	7	30.5	4.6	18.5	146		Fuse 15 A
WASH WATER PUMP	1	1	6530	7	30.5	4.6	18.5	190		Fuse 30 A
STEERING GEAR	2	1	83700	19	66.4	92	134	370		A.C.B. @ 225 A
E.R. EXHAUST PUMPS	2	1	83700	19	66.4	92	134	370		Fuse 50 A
STEERING GEAR (b) MAIN MOTOR	2	1	52600	7	86.7	39.6	74	168		Fuse 15 A
WORKSHOP MOTORS	4	1	52600	7	86.7	39.6	74	168		Fuse 15 A
VENTILATING FANS	2	1	6530	7	30.5	8.6	18.5	290		Fuse 15 A
Lub. Oil Purifier	2	1	6530	7	30.5	7.8	18.5	185		Fuse 60 A
Lub. Oil Heater	2-units	1	52600	7	86.7	52	74	185		Fuse 15 A
Pump Room Vent	1	1	6530	7	30.5	4.6	18.5	206		Fuse 15 A
Combustion Control	3	1	6530	7	30.5	1.8	18.5	40		Fuse 15 A
Main Cargo Pump	3	2	500M	37	116.2	707	888	200		A.C.B. @ 880 A
Cargo Stripping Pump	2	1	168 M	19	82.2	162	215	190		Fuse 200 A
Galley Feeder	-	1	200 M	37	82.2	192	230	190		A.C.B. @ 250 A
Center Castle Power	-	1	66400	7	97.4	44	83	610		Fuse 60 A
Motor Space Bilge Pump	1	1	6530	7	30.5	6.6	18.5	185		Fuse 15 A
Gyro Compass	1	1	33100	7	68.8	7	54.5	650		Fuse 15 A
Gyro Pilot	1	1	10400	7	38.5	8	25.5	270		Fuse 15 A
Gland Exhauster	1	1	6530	7	30.5	3.5	18.5	200		Fuse 15 A

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240 - V
D.C.

120 V D.C.

003971-003979-0301



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.

As Below Electrical Engineers. Date Below

COMPASSES. A.C.B. Var. Comp. 80
Distance between electric generators or motors and standard compass Nearest Motor (Window Wiper) - 16 Feet
Distance between electric generators or motors and steering compass Nearest Motor (Window Wiper) - 8 Feet
The nearest cables to the compasses are as follows:—
A cable carrying .87 Ampères 7 feet from standard compass 4 feet from steering compass.
A cable carrying 1.7 Ampères 7 feet from standard compass 4 feet from steering compass.
A cable carrying 1.7 Ampères 7 feet from standard compass 4 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 Inf. degrees on course in the case of the standard compass, and Inf. degrees on course in the case of the steering compass.

J.A. Hodge
Builder's Signature. Date

Is this installation a duplicate of a previous case Yes If so, state name of vessel Corsica 7540 Caddo 7585 Calusa 7623

General Remarks (State quality of workmanship, opinions as to class, etc.) The electrical equipment, machinery, etc., of this vessel has been built under Special Survey in accordance with the regulations and requirements of this Society. The electric units with all fittings, appliances, cables and fastenings have been carefully installed on board the vessel in compliance with the rules, and the materials and workmanship throughout are good. Upon completion of the survey the entire electrical system as a whole tested out under full working load conditions, also in accordance with section 17 of the Rules observed and found satisfactory.

The spare gear conforms to section 18 of the Rules.
In regard to the reverse current safety device the generators were paralleled, adjusted to normal voltage with moderate load and the emergency governor of one machine tripped leaving the set to its own device, the system observed with full vacuum maintained on turbine, the reverse current trip protection element functioning entirely satisfactory.
In my opinion the Electrical Equipment is eligible to be classed and recorded.

Total Capacity of Generators 650 Kilowatts.

The amount of Fee £ 245.00 When applied for, Mar. 20, 42
Travelling Expenses (if any) £ 22.50 When received, Apr. 24, 19. 42

Committee's Minute NEW YORK MAY 27 1942
Assigned Elec. light

2m 534. - Transfer. The Surveys are requested not to write on or below the space for Committee's Minute.

