

# REPORT ON ELECTRICAL EQUIPMENT.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL) 26 JAN 1942  
Received at London Office

Date of writing Report 30th Nov. 1941 When handed in at Local Office 30th Nov. 1941 Port of MOBILE, ALABAMA

No. in Survey held at MOBILE Date, First Survey 7th July Last Survey 18th Sept. 1941  
(Number of Visits 6)

Reg. Book. 90609 on the M.V. "WILLIAM C. McTARNAHAN" Tons { Gross 7302  
Net 5826

Built at Mobile, Alabama By whom built Alabama D.D. & S.B. Co. Yard No. 223 When built 1941

Owners National Bulk Carriers, Inc. Port belonging to Wilmington, Del.

Electric Light Installation fitted by Alabama D.D. & S.B. Company Contract No. 223 When fitted 1941

Is the Vessel fitted for carrying Petroleum in bulk yes

System of Distribution Two Wire

Pressure of supply for Lighting 110 volts, Heating 220 volts, Power 220 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. no. Flat compounded, 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 Port-1-175K Fwd. 1-125K Aft. Stbd. -1-175 KW on Gallery Dk. in E.R., 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 none near 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 Gallery Dk. in E.R. (P.S.)

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 none near 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 -

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 -

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 Pole switches for each Generator & each outgoing circuit. 3 Pole circuit breakers with equalizer on 3rd pole.

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

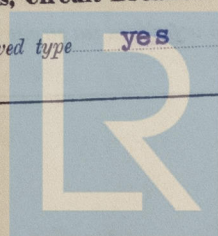
Instruments on main switchboard 3 ammeters 3

voltmeters - 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

Ground detector, volt meter & 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 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, concentric, or multicore **single & twin** 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 **-** **Fall of Pressure**, state maximum between bus bars and any point of the installation under maximum load **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 **yes**, 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 **yes**

**Support and Protection of Cables**, state how the cables are supported and protected **L. & A. throughout. Suitable hangers & clips.**

If cables are run in wood casings, are the casings and caps secured by screws **none**, 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 **yes**

**Joints in Cables**, state if any, and how made, insulated, and protected **Soldered & taped & made in metal junction boxes throughout.**

**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 **brass**

**Earthing Connections**, state what earthing connections are fitted and their respective sectional areas **ground lamps only.**

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 **Upper Deck - Separate Switchboard - Gasoline Engine.**

**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**

where are the controlling switches situated **-**

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 **yes**, are air heaters constructed and fitted as per Rule **yes**

**Searchlight Lamps**, No. of **none**, whether fixed or portable **-**, are their fittings as per Rule **-**

**Arc Lamps**, other than searchlight lamps, No. of **none**, 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 **none near combustible material.**

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 **-** **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 **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** **Approved by U.S. No. Laboratories.**

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**

PARTICULARS OF GENERATING PLANT.										
DESCRIPTION OF GENERATOR.	No. of	RATED AT				DRIVEN BY	WHERE DRIVEN BY AN INTERNAL COMBUSTION ENGINE.			
		Kilowatts.	Volts.	Amps.	Revs. per Min.		Fuel Used.	Flash Point of Fuel.		
MAIN	2	175	240	700	514	Diesel Eng.	Diesel Oil	150° F.		
AUXILIARY	1	125	240	500	514	" "	" "	"		
EMERGENCY	1	15	120	137	-	Gas Eng.	Gasoline			
Motor Gen- erator.	2	15	120	120	1750	25 HP Elec. Motor				
ROTARY TRANSFORMER										
GENERATOR, LIGHTING AND HEATING CONDUCTORS.										
DESCRIPTION.	No. per Pole.	CONDUCTORS.		COMPOSITION OF STRAND.		TOTAL MAXIMUM CURRENT. AMPERES.		Approximate Length. (Lead and Return.) Feet.	Insulated with	HOW PROTECTED.
		Total Nominal Area per Pole Sq. Ins.	No.	Diameter.	Circuit.	Rule.				
MAIN GENERATOR	1	1.5708	127	.1255	848	1150	180	VC through-	L. & A. through-	
EQUALISER CONNECTIONS	1	.510	61	.1032	-	530		out	out	
AUXILIARY GENERATOR	1	.9820	91	.1172	500	830	70			
EMERGENCY GENERATOR	1	.1045	19	.083	137	184	70			
ROTARY MOTOR	1	.1045	19	.083	93	184				
TRANSFORMER GENERATOR	1	.1659	19	.105	120	251				
ENGINE ROOM Port	1	.0329	7	.0772	40					
BOILER ROOM Stbd.	1	.0329			40					
AUXILIARY SWITCHBOARDS										
Amidships	1	1	.0329	7	.0772	20	84	350		
	2	1	.0329	7	.0772	30	84	320		
	3	1	.0329	7	.0772	30	84	320		
Aft Quarters P.	1	.0329	7	.0772	45	84	200			
S.	1	.0329	7	.0772	40	84	200			
ACCOMMODATION										
Branch Circuits	1	.003	7	.0242	8 max.	18	-			
WIRELESS		on power circuits.								
SEARCHLIGHT		none								
MASTHEAD LIGHT	1	.0051	7	.0305	5	25	350			
SIDE LIGHTS										
COMPASS LIGHTS	1	.0032	7	.0242	1/2	16				
STERN LIGHTS	1	.005	7	.0305	1/2	25				
FLOOD LIGHTS	1	.005	7	.0305	5	25	200			
ARC LAMPS		none								
HEATERS	1	.0206	7	.0612	25	62	200			
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.			
BALLAST PUMP	1	1	.0829	19	.0745	110	158	700	V.C. through-	L. & A. throughout
MAIN BILGE LINE PUMPS	1	1	.0261	7	.0688	30	72	150	out.	
GENERAL SERVICE PUMP										
EMERGENCY BILGE PUMP										
SANITARY PUMP	1	1	.0261	7	.0688	38	72	50		
CIRC. SEA WATER PUMPS	3	1	.013	7	.0486	19 ea.	53	240		
CULINARY	1	1	.013	7	.0486	12	53	200		
FRESH WATER PUMPS	1	1	.1659	19	.1055	175	251	150		
AIR COMPRESSOR	1	1	.013	7	.0486	19	53	25		
FRESH WATER PUMP	3	1	.1659	19	.1055	175	251	250		
STRIPPING PUMPS	2	1	.1659	19	.1055	175	251	150		
FIRE PUMPS	2	1	.1659	19	.1055	175	251	150		
LUBRICATING OIL PUMPS	2	1	.1659	19	.1055	175	251	150		
OIL FUEL TRANSFER PUMP	1	1	.0261	7	.0688	29	72	150		
WINDLASS	1	1	.2745	37	.0973	260	350	700		
WINCHES, FORWARD										
Midship Capstan	1	1	.0829	19	.0745	110	158	250		
WINCHES, AFT										
Aft Capstan	1	1	.0829	19	.0745	110	158	250		
STEERING GEAR-										
(a) MOTOR GENERATOR	1	1	.0829	19	.0745	110	158	250		
(b) MAIN MOTOR	2	1	.0829	19	.0745	93	158	50		
WORKSHOP MOTOR	1	1	.0206	7	.061	30	62	180		
VENTILATING FANS	4	1	.0051	7	.0305	10	25	90 each		
" "	2	1	.0051	7	.0305	8	25	80 "		
" "	1	1	.0051	7	.0305	4	25	150		
Cargo Pumps	2	1	1.5708	127	.1255	848	1150	150		
Radio	1	1	.0206	7	.061	30	62	250		
Refrigerators	1	1	.013	7	.0486	12	46	250		
Lube Oil Purifier	1	1	.0206	7	.061	30	62	120		



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.

*G. W. Sypniewski*

Electrical Engineers.

Date *December 1<sup>st</sup> 1941*

#### COMPASSES.

Distance between electric generators or motors and standard compass about 40 feet.

Distance between electric generators or motors and steering compass about 30 feet.

The nearest cables to the compasses are as follows:—

A cable carrying 1/4 Ampères close to feet from standard compass close to feet from steering compass. Binnacle.

A cable carrying 2 Ampères 5 feet from standard compass 5 feet from steering compass.

A cable carrying 2 Ampères 7 feet from standard compass 7 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

The maximum deviation due to electric currents was found to be slight only degrees on - course in the case of the standard compass, and - degrees on - course in the case of the steering compass.

*ALABAMA DRY DOCK & SHIPBUILDING Co.*

*G. W. Sypniewski* Naval Architect's Signature.

Date *December 1<sup>st</sup> 1941*

Is this installation a duplicate of a previous case yes If so, state name of vessel "PETROFUEL" Mob.Rpt.1786

General Remarks (State quality of workmanship, opinions as to class, etc.)

This Electric Light & Power Installation has been fitted on board under Special Survey in accordance with the Rules and approved plans and the workmanship and material are good.

The installation has been satisfactorily tried at full load and it is now in good and safe working condition and the vessel is eligible, in my opinion, to receive a character in the Register Book as recommended on Hull and Machinery Reports herewith.

Total Capacity of Generators 490 Kilowatts.

The amount of Fee ... \$223.00 : Dec. 2, 1941

Travelling Expenses (if any) £ : : 19

When applied for,

When received.

*J. B. Wood*  
Surveyor to Lloyd's Register of Shipping.

Committee's Minute

Assigned Elec. light.