

REC'D NEW YORK NOV 26 1947

Rpt. 13.

No. 4903

# REPORT ON ELECTRICAL EQUIPMENT.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

27 JAN 1948

Received at London Office

Date of writing Report 8th Nov. 1947 When handed in at Local Office 8th Nov. 1947 Port of Galveston, Texas

No. in Survey held at Port Arthur, Texas Date, First Survey 13th Aug. Last Survey 8th Oct. 1947  
Reg. Book. (Number of Visits 3)

on the S/S "GULFDAWN" Tons { Gross 7096  
Net 4537

Built at Chester, Pa. By whom built Sun S. B. & D.D. Co. Yard No. When built 1936

Owners Sabine Transportation Co. Port belonging to Baltimore, Maryland

Electric Light Installation fitted by Contract No. When fitted

Is the Vessel fitted for carrying Petroleum in bulk Yes

System of Distribution Two wire metallic circuits Direct Current

Pressure of supply for Lighting 120 volts, Heating None volts, Power 230 volts,

Direct or Alternating Current, Lighting Direct Current Power Direct Current

If alternating current system, state frequency of periods per second NO

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. Yes, 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 A.B.S. Have machines over 100 kw. been inspected by the Surveyors during manufacture and testing. repairing

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 Generator platform in after engine room, fore and 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 same compartment, aft of 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.

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.B.S. Yes, accessibility of all parts. Yes, absence of fuses on back of board meter fuses only, temperature rise of

omnibus bars. nil, individual fuses to voltmeter, pilot or earth lamp. meter only, 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 fitted with two pole carbon circuit breakers and three pole generator disconnect switch.

Circuit breakers are 11E 600 Amp 230 Volt D.C. with reversel current and overload taps.

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. 5 ammeters. 5 volt-

meters. none synchronizing device for paralleling purposes. For compound machines is the ammeter connected on the opposite pole to equalizer 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 lights Switches, Circuit Breakers and Fusible Cut-outs,

do these comply with the requirements of the Rules. A.B.S. are the fusible cutouts of an approved type. Yes have the reversed

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. **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. **A.B.S.** Fall of Pressure, state maximum between bus bars and any point of the installation under maximum load. **1 1/2** 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. **lead & armored conduit**

Support and Protection of Cables, state how the cables are supported and protected. **Lead covered main clipped to perforated steel tray and clipped to steel bulkhead walls.** Cables on deck and exposed areas are supported in rigid conduits.

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** If armored and lead covered cables are secured by metal clips, are the clips spaced as per Table VIII. **10 apart. 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. **made only in junction or connection boxes - all joints soldered**

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 bushing**

Earthing Connections, state what earthing connections are fitted and their respective sectional areas. **Copper wire 75.776 C.M.**

~~Solid ground through zero center ammeter~~ No earthing connections used other than for ground indicating lights. **Yes** 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. **Steam 60 K.W. 120 volts 500 amps.**

Generator flat in engine room. **Manually controlled**

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. **no batteries**

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. **Gas Proof** Outside areas are lighted with vapor proof fixtures. Pump room lighted with explosion proof fixtures. **Yes** how are the cables led

where are the controlling switches situated. **Switches are located on main switchboard in Engine Room**

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. **Yes** 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. **Drip proof**

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 BPH 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** 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**

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.	Ampères.	Revs. per Min.		Fuel Used.	Flash Point of Fuel.
MAIN ...	2	125	240	520	1200	Steam turbine		
AUXILIARY ...	2	60	120	500	1800	"		
EMERGENCY ...	1	18	125	144	1100	230 V. 91 AMP. Triumph Motor 1100 R.P.M. 25 H.P.		
ROTARY TRANSFORMER	None							

## GENERATOR, LIGHTING AND HEATING CONDUCTORS.

DESCRIPTION.	CONDUCTORS.		COMPOSITION OF STRAND.		TOTAL MAXIMUM CURRENT.		Approximate Length. (Lead and Return.) Feet.	Insulated with	HOW PROTECTED
	No. per Pole.	Total Nominal Area per Pole Sq. Int.	No.	Diameter.	In Circuit.	Rule.			
MAIN GENERATOR ...	1	650,000	CM 61	.992	520	596	30'	Varnished Cambric	Lead Cased Basket Weave Armored
EQUALISER CONNECTIONS ...									
AUXILIARY GENERATOR ...	1	650,000	CM 61	.992	500	596	36'	"	"
EMERGENCY GENERATOR ...	1	168,000	CM 19	.940	144	160	54'	"	"
ROTARY TRANSFORMER (GENERATOR) ...									
ENGINE ROOM ...									
BOILER ROOM ...									
AUXILIARY SWITCHBOARDS ...									
Main leads to panels #4 and 6 stranded varnished cambric insulation lead cased with basket weave. All branches are #14 and 12 R. C. lead cased and basket weave.									
ACCOMMODATION ...	2H6	v.c. to all cabinets.							
All circuits 2 and 3 conductor #14 lead cased basket weave cables.									
WIRELESS ...	2	#6 strands			20 Amp.	55.5		Varnished cambric	Lead cased basket weave cable
SEARCHLIGHT ...	no	no							
MASTHEAD LIGHT ...	3	#14 strands			1/2 Amp.	11.5		Rubber	"
SIDE LIGHTS ...	3	#14 strands			1/2 Amp.	11.5		Rubber	"
COMPASS LIGHTS ...	2	#14			1/2 Amp.	11.5		Rubber	"
POOP LIGHTS ...									
CARGO LIGHTS ...	2	#10 strands RC			6 Amp.	28		Rubber	"
ARC LAMPS ...	none								
HEATERS ...	none								

## MOTOR CONDUCTORS.

DESCRIPTION.	No. of Motors.	CONDUCTORS.		COMPOSITION OF STRAND.		TOTAL MAXIMUM CURRENT.		Approximate Length. (Lead and Return.) Feet.	Insulated with	HOW PROTECTED
		No. per Pole.	Total Nominal Area per Pole Sq. Int.	No.	Diameter.	In Circuit.	Rule.			
BALLAST PUMP ...										
MAIN BILGE LINE PUMPS ...										
GENERAL SERVICE PUMP ...										
EMERGENCY BILGE PUMP ...										
SANITARY PUMP ...	2	1	16,500	CM 7	.0486	28	41	60'	Varnished Cambric	Lead cased basket weave cable
CIRC. SEA WATER PUMPS ...										
CIRC. FRESH WATER PUMPS ...	1	1	30,400	CM 7	.0772	19.9	41	60'	"	"
AIR COMPRESSOR ...	1	1	41,700	CM 7	.0772	55	75	80'	"	"
FRESH WATER PUMP ...	1	1	6,530	CM 7	.0305	6	22	60'	"	"
ENGINE TURNING GEAR ...	1	1	41,700	CM 7	.0772	56	100	80'	"	"
ENGINE REVERSING GEAR ...	1	1	41,700	CM 7	.0772	56	100	80'	"	"
LUBRICATING OIL PUMPS ...	1	1	16,500	CM 7	.0486	21	41	50'	"	"
OIL FUEL TRANSFER PUMP ...	1	1	16,500	CM 7	.0486	21	41	60'	"	"
WINDLASS ...										
WINCHES, FORWARD ...										
WINCHES, AFT ...										
STEERING GEAR—										
(a) MOTOR GENERATOR ...										
(b) MAIN MOTOR ...	2	1	52,600	CM 7	.0867	73	137	40'	"	"
WORKSHOP MOTOR ...	1	1	26,300	CM 7	.0612	40	55	30'	"	"
VENTILATING FANS Midship ...	1	1	16,500	CM 7	.0486	11.85	41	400'	"	"
" " Engine Rm. ...	3	1	41,700	CM 7	.0772	16.8	75	80'	"	"
" " qts. aft. ...	1	1	6,530	CM 7	.0305	14.5	22	80'	"	"
" " Gen. Plot ...	1	1	4,110	CM 7	.0262	11.55	11.5	60'	"	"
" " Engine Rm. ...	2	1	26,300	CM 7	.0612	38	55	60'	"	"
" " Crew's qts. ...	1	1	16,500	CM 7	.0486	28.5	41	70'	"	"

Corrections in pencil by New York office from plan attached

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.

C. R. Noblett

Electrical Engineers.

Date Oct. 10, 1947

#### COMPASSES.

Distance between electric generators or motors and standard compass..... about 300 feet to main generator

Distance between electric generators or motors and steering compass..... about 290 feet to main generator

The nearest cables to the compasses are as follows:—

A cable carrying  $1/4$  Ampères..... 1 feet from standard compass..... 1 feet from steering compass.

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

A cable carrying 40 Ampères..... 16 feet from standard compass..... 16 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..... No

The maximum deviation due to electric currents was found to be  $1\frac{1}{2}^{\circ}/2^{\circ}$  degrees on..... West..... 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..... Yes..... If so, state name of vessel..... Gulfbelle

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

2 Main Generators - 125 K.W. Steam driven

Stbd. - Single Red. 230 V - 125 KW Westinghouse Pinion Bearings 1st Dia  $3\frac{1}{2}$  x  $5\frac{1}{2}$

long Generator Shaft Bearings  $5\frac{1}{2}$ " long - dia. 4" Main Gear Wheel Dia. 26" -

Width  $9\frac{1}{2}$ " Pinion dia. 5" Generator End Data: Westinghouse 125 KW - 240 Volts

520 Amps - 1200 R.P.M. Pinion - R.P.M. 6600 Gear - R.P.M. 1200

1 Auxiliary Generator - 60 K.W. Steam Driven

Forward Westinghouse Amps. 500 - R.P.M. 1800 Steam Westinghouse Turbine Steam

pressure 200# H.P. 89.4 - R.P.M. 7282

1 Auxiliary Generator - 18 K.W. Motor driven

Generator End Westinghouse DC Generator #100L - Comp. Wound 18 K.W. 125V.

144 Amps - 1100 R.P.M. Triumph Electric Manufacturing Cincinnati, Ohio Type FF -

Volts 230 Amps. 91 - R.P.M. 1150 HP 25

Special Survey (see Galveston Report) and found to be efficiently installed and securely fitted in the vessel in accordance with the Society's Rules, and therefore recommended that the electrical installation is such as could be accepted by the committee for Classification.

Total Capacity of Generators..... 328 Kilowatts.

The amount of Fee ... .. £

See Rpt. 9

When applied for,

19

Traveling Expenses (if any) £

When received,

19

Committee's Minute

NEW YORK DEC 30 1947

Assigned

Electric Light

Surveyor to Lloyd's Register of Shipping.

Noted. Sent  
25/2/48.



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Foundation