

Rpt. 13.

No. 42056

# REPORT ON ELECTRICAL EQUIPMENT.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

25 APR 1942

Received at London Office

Date of writing Report JAN 9 1942 When handed in at Local Office JAN 19 1942 Port of NEW YORK (ASTON DISTRICT)

No. in Survey held at QUINCY, MASS. Date, First Survey DEC 5 Last Survey JAN 6 1942  
Reg. Book. (Number of Visits 11)

on the STEEL SINGLE SCREW TANKER "SINCLAIR HC" Tons { Gross 7874  
Net 4596

Built at QUINCY, MASS By whom built BETHLEHEM STEEL CO Yard No. 1491 When built 1941

Owners SINCLAIR REFINING CO. Port belonging to WILMINGTON, DEL.

Electric Light Installation fitted by BETHLEHEM STEEL CO. Contract No. 1491 When fitted 1941

Is the Vessel fitted for carrying Petroleum in bulk YES

System of Distribution TWO WIRE - DIRECT CURRENT

Pressure of supply for Lighting 120 VOLTS volts, Heating — volts, Power 240 volts.

Direct or Alternating Current, Lighting DIRECT Power DIRECT

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. —, 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 *not received L.Y.* 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 FLAT IN ENGINE ROOM ON STBD SIDE OF VESSEL, 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 ON FLAT OUTBOARD OF GENERATORS ON STBD SIDE 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

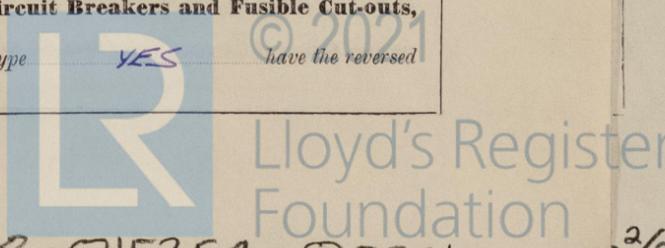
, is all insulation of high dielectric strength and of permanently high insulation resistance YES, is it of an approved type YES, if semi-insulating material is used, are all conducting parts insulated from the slab with mica or micanite or other non-hygroscopic insulating material, and the slab similarly 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 NO, 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 GENERATORS CONNECTED TO 3 POLE SINGLE THROW KNIFE SWITCH - CENTER POLES INTERCONNECTED FOR EQUALIZER - OUTSIDE POLES CONNECTED TO D.P.S.T. CIRCUIT BREAKERS WITH OVERLOAD PROTECTION. OUT GOING CIRCUITS PROTECTED BY D.P.S.T. KNIFE SWITCH FUSED IN EACH POLE.

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 ALL OPEN Instruments on main switchboard FOUR ammeters FOUR 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 LAMPS AND MOMENTARY VOLTMETER READINGS 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 —



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 are the cables insulated and protected as per Tables IV, V, X or XI of the Rules. YES AND A.I.E.E.

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% POWER 3% LIGHTING **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 — **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 SINGLE CABLES SECURED BY SCREWED CLIPS. CABLE RUNS BY WELDED FRAMES WITH CROSS BARS AND SCREEN CLIPS.

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 YES

**Joints in Cables**, state if any, and how made, insulated, and protected ALL JOINTS MADE IN WATER-TIGHT METAL 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 MALLEABLE IRON

**Earthing Connections**, state what earthing connections are fitted and their respective sectional areas. ARMOR OF ALL CABLES FRAMES OF GENERATORS, SWITCHBOARDS, PANELS AND MOTORS.

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 EMERGENCY GENERATOR LOCATED ON MAIN DECK ABOVE ENGINE ROOM — MANUAL CONTROL — DIESEL POWERED.

**Navigation Lamps**, are these separately wired YES, controlled by separate switch and separate fuses YES, are the fuses double pole — are the switches and fuses grouped in a position accessible only to the officers on watch YES — ON PANEL IN PILOT HOUSE has each navigation lamp an automatic indicator as per Rule YES **Secondary Batteries**, are they constructed and fitted as per Rule YES (RADIO ONLY)

**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 — METAL GUARDS ON ALL WATERTIGHT LAMPS.

are any fittings placed in spaces where inflammable or explosive dust or gases are liable to be present, if so, how are they protected YES — FITTINGS ARE OF THE EXPLOSION PROOF CONSTRUCTION IN PUMP ROOMS, how are the cables led —

where are the controlling switches situated OUTSIDE OF COMPARTMENT

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 NONE INSTALLED

**Searchlight Lamps**, No. of ONE, whether fixed or portable FIXED, 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 — are their axes of rotation fore and aft YES — AUG VERT., 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 SO INSTALLED, 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 **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 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 —

**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	200	240	2080		STEAM TURBINES			
AUXILIARY	2	20	120	416		240 VOLT MOTORS			
EMERGENCY	1	15	240	78		DIESEL			
	1	10	120	104					
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.	In Circuit.	Rule.			
MAIN GENERATOR	2	650,000				1040	1060	70	VARNISHED CAMBRIC	LEAD BRONZE ARMOR
EQUALISER CONNECTIONS	1	650,000					530	35	"	"
AUXILIARY GENERATOR	1	212,000				208	251	60	"	"
EMERGENCY GENERATOR	1	106,000				78	158	60	"	"
ROTARY TRANSFORMER MOTOR GENERATOR										
ENGINE ROOM										
BOILER ROOM	1	133,000				73	184	240	"	"
AUXILIARY SWITCHBOARDS										
AGASSIPS L1	1	600,000				132	501	640	"	"
POOP STEER L2	1	83,100				104	134	120	"	"
" AFT L3	1	66,400				69	83	100	"	"
ACCOMMODATION										
WIRELESS	1	66,400				30	83	660	"	"
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.			
BALLAST PUMP	1	1	41700			38	63	160	VARNISHED CAMBRIC	LEAD BRONZE ARMOR
MAIN BILGE LINE PUMPS										
GENERAL SERVICE PUMP										
EMERGENCY BILGE PUMP										
SANITARY PUMP	1	1	10200			20	26.5	140		
CIRC. SEA WATER PUMPS	1	1	212000			188	251	80		
CIRC. FRESH WATER PUMPS										
AIR COMPRESSOR	1	1	212000			178	251	200		
FRESH WATER PUMP	1	1	4110			5	13	180		
ENGINE TURNING GEAR	1	1	26300			19	46.5	140		
ENGINE REVERSING GEAR										
LUBRICATING OIL PUMPS	1	1	66400			57	83	140		
OIL FUEL TRANSFER PUMP										
WINDLASS										
WINCHES, FORWARD										
WINCHES, AFT										
STEERING GEAR—										
(a) MOTOR GENERATOR										
(b) MAIN MOTOR	2	1	212000			128	251	120		
WORKSHOP MOTOR	4	1	66400			68	83	180		
VENTILATING FANS										
INDUCED DRAW FANS	2	1	83700			91	98	220		

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 TWENTY FEET TO MOTOR GENERATOR FOR GYRO COMPASS.

Distance between electric generators or motors and steering compass SIXTEEN " " " " " "

The nearest cables to the compasses are as follows :-

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

A cable carrying Ampères feet from standard compass 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 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 NIL degrees on course in the case of the standard compass, and degrees on course in the case of the steering compass.

Bethlehem Steel Company (Shipbuilding Division)  
Fore River Yard

Builder's Signature. Date  
General Manager

Is this installation a duplicate of a previous case YES If so, state name of vessel "SINCLAIR OPAINE"

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

THE ELECTRICAL MACHINERY AND EQUIPMENT OF THIS VESSEL HAS BEEN BUILT UNDER SPECIAL SURVEY IN ACCORDANCE WITH THE REGULATIONS AND REQUIREMENTS OF THE SOCIETY. THE ELECTRICAL UNITS WITH ALL FITTINGS, CABLES, AND FASTENINGS HAVE BEEN CAREFULLY INSTALLED ON BOARD THE VESSEL IN COMPLIANCE WITH THE RULES. THE MATERIALS AND WORKMANSHIP ARE GOOD. THE ENTIRE ELECTRICAL SYSTEM WAS TESTED UNDER FULL WORKING LOAD CONDITIONS AND FOUND SATISFACTORY. IN MY OPINION THE ELECTRICAL EQUIPMENT IS ELIGIBLE TO BE CLASSED AND RECORDED.

FOR FURTHER DETAILS PLEASE SEE LONDON REPORT NOS 3688 AND 3689 ALSO CLEVELAND REPORT NO C2801 (See Sheet)

Noted  
L.Y.  
30/4/42

Total Capacity of Generators 425 Kilowatts.

The amount of Fee ... \$215.25 : When applied for, Jan 31 1942  
Travelling Expenses (if any) £ : : When received, 19

Surveyor to Lloyd's Register of Shipping.

NEW YORK JAN 28 1942

Committee's Minute

Assigned Elec. light.

2m.5.54.—Transfer. The Surveyors are requested not to write on or below the space for Committee's Minute.