

Rpt. 13.

No. 42277

REPORT ON ELECTRICAL EQUIPMENT.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

2 JUN 1942

Received at London Office

Date of writing Report MAR 3 1942 When handed in at Local Office MAR 30 1942 Port of NEW YORK (BOSTON DISTRICT)
No. in Survey held at QUINCY, MASS Date, First Survey FEB 19 Last Survey MAR 27 1942
Reg. Book. (Number of Visits 12)
on the SINGLE SKEW STEEL STEAMER "SHELDON CLARK" Tons { Gross 10804
Net 6355
Built at QUINCY, MASS By whom built BETHLEHEM STEEL CO Yard No. 1493 When built 1942
Owners SINCLAIR REFINING CO. Port belonging to WILMINGTON, DEL.
Electric Light Installation fitted by BETHLEHEM STEEL CO. Contract No. 1493 When fitted 1942
Is the Vessel fitted for carrying Petroleum in bulk YES

System of Distribution TWO WIRE - DIRECT CURRENT

Pressure of supply for Lighting 120 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. 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 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 LOCATED ON FLAT IN ENGINE ROOM ON STARBOARD 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 LOCATED OUTBOARD OF GENERATORS ON

GENERATOR FLAT 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

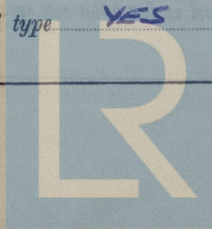
Switchboards, are they placed in accessible positions, free from inflammable gases and acid fumes YES, are they protected from mechanical injury and damage from water, steam or oil YES, if situated near unprotected woodwork or other combustible material, state distance of same horizontally from or vertically above the switchboards NO COMBUSTIBLE MATERIAL 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 P.S.T. KNIFE SWITCH - CENTER POLES INTERCONNECTED FOR EQUALIZER OUTSIDE POLES CONNECTED TO D.P.S.T. CIRCUIT BREAKER WITH OVERLOAD PROTECTION, OUTGOING 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 — 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 VOLTMEETER READING 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 **TWIN-SINGLE** are the cables insulated and protected as per Tables IV, V, X or XI of the Rules **AND A.I.E.E. RULES**

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 FRAME AND CROSS BAR SUPPORTS AND CABLE SECURED BY SCREWED STRAPS.**

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 APPROVED METAL WT 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

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

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, DIESEL POWERED, IS LOCATED ON MAIN DECK AFT OF ENGINE ROOM CASING - MANUAL CONTROL**

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 - LOCATED IN WHEEL HOUSE** has each navigation lamp an automatic indicator as per Rule **YES** **Secondary Batteries**, are they constructed and fitted as per Rule **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 **METAL GUARDS**

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 - IN DUMP ROOMS - FITTINGS OF EXPLOSION PROOF CONSTRUCTION.** how are the cables led **CABLES ARE PROTECTED BY LEAD AND ARMOR**

where are the controlling switches situated **SWITCHES LOCATED ON DECK OUTSIDE OF COMPARTMENT**

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 **NONE INSTALLED**

Searchlight Lamps, No. of **ONE**, whether fixed or portable **FIXED**, 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 **—**, 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 AND VERTICAL** 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 **NO WOODWORK**, 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 **NONE** **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. | Amperes. | Revs. per Min. | | Fuel Used. | Flash Point of Fuel. |
| MAIN ... | 2 | 250 | 240 | 3600 | 104 | STEAM TURBINE | | |
| AUXILIARY ... | 2 | 20 | 120 | 416 | | MOTOR 240 VOLTS | | |
| EMERGENCY ... | 1 | 15 | 240 | 78 | | DIESEL | | |
| | 1 | 10 | 120 | 104 | | | | |
| ROTARY TRANSFORMER | | | | | | | | |

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. Ins. | No. | Diameter. | Circuit. | Rule. | | | |
| MAIN GENERATOR ... | 2 | 720,000 | | | 1200 | 1450 | 164 | 70 | UNARMED BRASS LEAD AND ARMOR |
| EQUALISER CONNECTIONS ... | 1 | 720,000 | | 1042 | | 200 | | 35 | " |
| AUXILIARY GENERATOR ... | 1 | 216,000 | | | 208 | 251 | | 60 | " |
| EMERGENCY GENERATOR ... | 1 | 106,000 | | | 78 | 155 | | 60 | " |
| ROTARY TRANSFORMER MOTOR GENERATOR ... | 1 | 106,000 | | | 104 | 158 | | 60 | " |
| ENGINE ROOM ... | | | | | | | | | |
| BOILER ROOM ... | | | | | | | | | |
| AUXILIARY SWITCHBOARDS ... | | | | | | | | | |
| AWARDSHIP L1 | 1 | 620,000 | | | 135 | 201 | | 680 | " FUSES 150 AMP |
| PROP. PUMP L2 | 1 | 83,000 | | | 93 | 134 | | 120 | " 125 " |
| 5000 L3 | 1 | 66,000 | | | 76 | 83 | 120 | 100 | " 80 " |
| ENGINE ROOM L4 | 1 | 133,000 | | | 76 | 184 | 200 | 240 | " 80 " |
| ACCOMMODATION ... | | | | | | | | | |
| WIRELESS ... | 1 | 66,400 | | | 30 | 83 | 120 | 200 | " 80 " |
| 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. | | 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 | UNARMED BRASS LEAD AND ARMOR | FUSES 60 AMPS. |
| MAIN BILGE LINE PUMPS ... | | | | | | | | | | |
| GENERAL SERVICE PUMP ... | | | | | | | | | | |
| EMERGENCY BILGE PUMP ... | | | | | | | | | | |
| SANITARY PUMP ... | 1 | 1 | 10400 | | | 20 | 25.5 | 140 | " | " 25 " |
| CIRC. SEA WATER PUMPS ... | 1 | 1 | 70000 | | | 280 | 350 | 80 | " | CB 350 TRIP |
| CIRC. FRESH WATER PUMPS ... | | | | | | | | | | |
| AIR COMPRESSOR ... | 1 | 1 | 212000 | | | 180 | 251 | 200 | " | CB 225 TRIP |
| FRESH WATER PUMP ... | 1 | 1 | 4110 | | | 5 | 13 | 180 | " | FUSE 10 AMP. |
| ENGINE TURNING GEAR ... | 1 | 1 | 26300 | | | 30 | 46.5 | 180 | " | " 45 " |
| ENGINE REVERSING GEAR ... | | | | | | | | | | |
| LUBRICATING OIL PUMPS ... | 1 | 1 | 83700 | | | 73 | 134 | 100 | " | " 100 " |
| OIL FUEL TRANSFER PUMP ... | | | | | | | | | | |
| WINDLASS ... | | | | | | | | | | |
| WINCHES, FORWARD ... | | | | | | | | | | |
| WINCHES, AFT ... | | | | | | | | | | |
| STEERING GEAR— | | | | | | | | | | |
| (a) MOTOR GENERATOR ... | | | | | | | | | | |
| (b) MAIN MOTOR ... | 2 | 1 | 350,000 | | | 164 | 350 | 300 | " | CB 350 TRIP |
| WORKSHOP MOTOR ... | 4 | 1 | 66400 | | | 70 | 83 | 180 | " | |
| VENTILATING FANS ... | | | | | | | | | | |
| INDUCED DRAFT ... | 2 | 1 | 133000 | | | 128 | 184 | 260 | " | FUSE 175 AMP. |

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 350' FROM MAIN GENERATORS

Distance between electric generators or motors and steering compass 320' " " "

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 COMPASSES ADJUSTED AFTER THE VESSEL WAS DELIVERED

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.

NOTE:— STEERING COMPASS FITTED WITH COMPENSATING COILS FOR DEGAUSSING SYSTEM.

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 "FLAGSHIP SINCO"

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

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 ACCORDANCE 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.

Noted

S.Y.

8/6/42.

Total Capacity of Generators 525 Kilowatts.

The amount of Fee ... \$ 227⁷⁵

When applied for,

April 8, 1942

When received.

Travelling Expenses (if any) £

Committee's Minute

Assigned

Elec. light

NEW YORK APR 8 1942

P.A. Wilson Jr.

Surveyor to Lloyd's Register of Shipping.