

REPORT ON ELECTRICAL EQUIPMENT.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

Received at London Office JAN 16 1939

Date of writing Report 10th Dec. 1938 When handed in at Local Office 10th Dec. 1938 Port of Montreal.

No. in Survey held at Sorel, P.Q. Date, First Survey 28th Sept. Last Survey 26th Nov. 1938
Reg. Book. 89751 on the Single Screw Motorship "Petrolite" Tons { Gross 1560.56
Net 856.16

Built at Sorel, P.Q. By whom built Marine Industries, Ltd Yard No. 65 When built 1938.

Owners Imperial Oil Shipping Co Ltd Port belonging to Montreal (may be transferred to Vancouver)

Electric Light Installation fitted by Whitley Electric, Montreal. Contract No. 443 When fitted 1938.

Is the Vessel fitted for carrying Petroleum in bulk Yes.

System of Distribution Two Wire ✓ volts, Heating - volts, Power 220 ✓ volts.

Pressure of supply for Lighting 110 ✓ 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. ✓

approved Yes ✓ Have machines over 100 kw. been inspected by the Surveyors during manufacture and testing No ✓ For Cargo Pumps Only

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 ✓

Position of Generators In Engine Room. ✓, 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 Engine Room, Starboard 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 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 Yes ✓, 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 Circuit Breakers with overload and Reverse Coil. ✓

Are turbine driven generators fitted with emergency trip switch as per rule None ✓ Are cupboards or compartments containing switchboards composed of fire-resisting material or lined with approved material Yes ✓ Instruments on main switchboard Ten ✓ ammeters Five ✓

voltmeters Five. ✓ 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 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, 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 4.5 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 —, 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 Yes.

Support and Protection of Cables, state how the cables are supported and protected Cable troughs - armoured.

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 (Domestic only).

Joints in Cables, state if any, and how made, insulated, and protected W.T. Boxes with Terminal Blocks.

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 Lead.

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 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 None.

are any fittings placed in spaces where inflammable or explosive dust or gases are liable to be present, if so, how are they protected Explosion proof.

Fittings on bulkhead in Pump Room. how are the cables led Lead covered in conduit, accessible from outside space only.

where are the controlling switches situated Outside entrance to Pump 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 None, are air heaters constructed and fitted as per Rule None.

Searchlight Lamps, No. of One, whether fixed or portable Fixed, are their fittings as per Rule Yes.

Are 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 - where possible, 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 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 - Stored in dry location.

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	210	220	955	400	Main Engines.	Diesel Oil	Above 150° F
AUXILIARY	1	75	220	340	900	Auxiliary Diesel	" "	" "
EMERGENCY	1	20	220	91	1200	" "	" "	" "
ROTARY TRANSFORMER	1	10	110	90	1800	220 Volt. Motor	" "	" "

Note: - The 2-210 KW Generators are intended for cargo pumping service only.

GENERATOR, LIGHTING AND HEATING CONDUCTORS.

DESCRIPTION.	No. per Pole.	Total Nominal Area per Pole Sq. Ins.	COMPOSITION OF STRAND.		TOTAL MAXIMUM CURRENT AMPERES.		Approximate Length (Lead and Return) Feet.	Insulated with	HOW PROTECTED.
			No.	Diameter.	Circuit.	Rule.			
MAIN GENERATORS...	1	1.5708	127	.1255	955	1000	30	Rubber	L.C. Armoured.
EQUALISE CONNECTIONS	1	.7854	61	.1280	480	520	40	"	"
AUXILIARY GENERATOR	1	.5105	61	.1032	340	340	30	"	"
EMERGENCY GENERATOR	1	.1045	19	.0837	91	123	40	"	"
ROTARY MOTOR	1	.05213	7	.0974	65	107	30	"	"
TRANSFORMER GENERATOR	1	.08286	19	.0745	90	114	20	"	"
ENGINE ROOM...	1	.00322	1	.0641	8	12.9	40	"	"
BOILER ROOM...	—	—	—	—	—	—	—	—	—
AUXILIARY SWITCHBOARDS	—	—	—	—	—	—	—	—	—
Distr. Panel	1	.00815	7	.0385	20	25	80	"	"
"	1	.00815	7	.0385	20	25	40	"	"
"	1	.00815	7	.0385	10	25	40	"	"
ACCOMMODATION	1	.00322	1	.0641	1.5	12.9	—	"	L.C. only.
WIRELESS	1	.00513	7	.0305	3	20.7	120	"	L.C. Armoured.
SEARCHLIGHT	1	.00513	7	.0305	7	20.7	100	"	"
MASTHEAD LIGHT	1	.00322	1	.0641	60 watts	12.9	120	"	"
SIDE LIGHTS	1	.00322	1	.0641	"	12.9	40	"	"
COMPASS LIGHTS	1	.00322	1	.0641	10	12.9	20	"	"
POOP LIGHTS	—	—	—	—	—	—	—	—	—
CARGO LIGHTS	—	—	—	—	—	—	—	—	—
ARO LAMPS	—	—	—	—	—	—	—	—	—
HEATERS	1	.00815	7	.0385	18	25	40	"	"

Note: - All conductors are American Standard Browne & Sharpe's Gauge.

Total maximum current per Rules interpolated.

MOTOR CONDUCTORS.

DESCRIPTION.	No. of Motors.	No. Per Pole.	Total Nominal Area per Pole Sq. Ins.	COMPOSITION OF STRAND.		TOTAL MAXIMUM CURRENT AMPERES.		Approximate Length (Lead and Return) Feet.	Insulated with	HOW PROTECTED.
				No.	Diameter.	In Circuit.	Rule.			
BALLAST PUMP	1	1	.00322	1	.0641	9	12.9	40	Rubber	L.C. Armoured.
MAIN BILGE LINE PUMPS	1	1	.02062	7	.0612	20.8	42	80	"	"
GEN. SERVICE PUMP	1	1	.1318	19	.0940	135	155	60	"	"
EMERGENCY BILGE PUMP	1	1	.00322	1	.0641	3	12.9	40	"	"
SANITARY PUMP	1	1	.00322	1	.0641	7.3	12.9	48	"	"
CIRC. SEA WATER PUMPS	1	1	.02062	7	.0612	30	42	60	"	"
CIRC. FRESH WATER PUMPS	—	—	—	—	—	—	—	—	—	—
AIR COMPRESSOR	1	1	.02062	7	.0612	30	42	30	"	"
FRESH WATER PUMP	1	1	.02062	7	.0612	40	42	60	"	"
ENGINE TURNING GEAR	—	—	—	—	—	—	—	—	—	—
ENGINE REVERSING GEAR	—	—	—	—	—	—	—	—	—	—
LUBRICATING OIL PUMPS	1	1	.02062	7	.0612	40	42	60	"	"
OIL FUEL TRANSFER PUMP	1	1	.06573	19	.0664	75	91	84	"	"
WINDLASS	1	1	.06573	19	.0664	75	91	84	"	"
WINCHES, FORWARD	1	1	.03278	7	.0772	56	67	120	"	"
WINCHES, AFT	1	1	.03278	7	.0772	56	67	60	"	"
Cargo Winches	3	1	.1045	19	.0837	90	123	90	"	"
STEERING GEAR—	—	—	—	—	—	—	—	—	—	—
(a) MOTOR GENERATOR	—	—	—	—	—	—	—	—	—	—
(b) MAIN MOTOR	1	1	.02062	7	.0612	40	42	60	"	"
WORKSHOP MOTOR	4	1	.1045	19	.0837	122	123	25	"	"
Feed Pump	1	1	.00322	1	.0641	6.5	12.9	30	"	"
VENTILATING FANS	—	—	—	—	—	—	—	—	—	—
Oil Trans. Pump	1	1	.00322	1	.0641	1.5	12.9	20	"	"
Centrifuge	1	1	.00322	1	.0641	8.7	12.9	30	"	"
Hot Water Heater	1	1	.00322	1	.0641	4	12.9	20	"	"
Elect. Mag. Couplings	2	1	.02062	7	.0612	38	42	30	"	"

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.

WHITLEY ELECTRIC
781 WELLINGTON ST. M.A.S.

Electrical Engineers.

Date Dec 6th 1938

COMPASSES.

Distance between electric generators or motors and standard compass 40' Approx.

Distance between electric generators or motors and steering compass 35' "

The nearest cables to the compasses are as follows:—

A cable carrying Five Amperes 10 feet from standard compass 15 feet from steering compass.

A cable carrying Five Amperes 15 feet from standard compass 10 feet from steering compass.

A cable carrying — Amperes — 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 All courses in the case of the standard

compass, and Nil degrees on All courses in the case of the steering compass.

MARINE INDUSTRIES LIMITED

General Superintendent

Builder's Signature.

Date Dec. 9th, 1938

Is this installation a duplicate of a previous case. Yes. If so, state name of vessel M. V. "Imperial" (See Toronto Report)

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

The Electrical Equipment of this vessel has been fitted on board under special survey and in accordance with the approved plans, tested under full working conditions and found satisfactory.

The materials and workmanship are good and sound.

Noted
19/1/39

Total Capacity of Generators 525 Kilowatts.

The amount of Fee ... £ 300⁰⁰ : When applied for, 3rd Dec. 1938

Travelling Expenses (if any) £ Charged on Hull Rpt. : When received, 17. 2. 1939

Geo. Allan
Surveyor to Lloyd's Register of Shipping.

Committee's Minute FRI 8 FEB 1939

Assigned See M.S. J.C. 4830

2m.f.24.—Transfer.
The Surveyors are requested not to write on or below the space for Committee's Minute

