

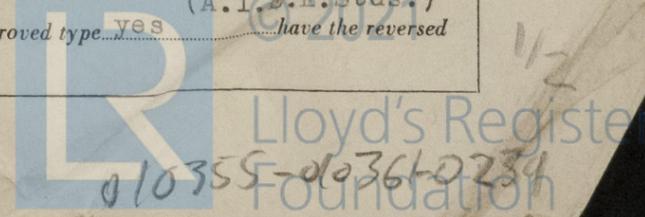
# REPORT ON ELECTRICAL EQUIPMENT.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

Received at London Office **22 SEP 1949**

Date of writing Report 22nd Aug., 1949 When handed in at Local Office 22nd August, 1949. Port of PHILADELPHIA, PA.  
 No. in Survey held at Chester, Pa. Date, First Survey 7th April, Last Survey 15th June, 1949.  
 Reg. Book. (Number of Visits seven)  
 - on the S.S. "RAS AL ARDH" Tons { Gross 17612.57  
 Net \_\_\_\_\_  
 Built at Chester, Pa. By whom built Sun S.B. & D.D. Co. Yard No. 569 When built 1949  
 Owners Kupan Transport Co. Port belonging to \_\_\_\_\_  
 Electric Light Installation fitted by Sun S.B. & D.D. Co. Contract No. 569 When fitted 1949  
 Is the Vessel fitted for carrying Petroleum in bulk yes

System of Distribution 3 phase 3 wire for power  
3 phase 3 wire for ltg. panels, 2 wire single phase for ltg. branch circuits  
 Pressure of supply for Lighting 115 volts. Heating 115 generator (as per AIEE Stds.)  
220 (water heater) volts, Power 440 volts.  
 Direct or Alternating Current, Lighting Alternating Power Alternating  
 If alternating current system, state frequency of periods per second 60  
 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 (as per AIEE Stds.) are they compound wound AC generators  
 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 exciter yes Have certificates of test results for machines under 100 kw. been submitted and approved - 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 machinery flat stbd. side 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 machinery flat 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 (as per AIEE Stds.) 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 3 pole manually operated circ. breaker with 3 overcurrent trips & shunt trip. (generator) (each feeder circuit)  
 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 2 ammeters 3 voltmeters 1 synchronizing device for paralleling purposes. For compound machines is the ammeter connected on the opposite pole to equalizer connection -  
 Earth Testing, state what means are provided at the main switchboard for indicating the state of the insulation of the system Ground lamps (A.I.E.E. Stds.) Switches, Circuit Breakers and Fusible Cut-outs, (A.I.E.E. Stds.) do these comply with the requirements of the Rules yes are the fusible cutouts of an approved type yes have they been 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 ~~XXX~~ A.I.E.E. standards..... 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  
(as per A.I.E.E. Stds.)

If the cables are insulated otherwise than as per Rule, are they of an approved type..... yes..... **Fall of Pressure**, state maximum between bus bars and any point of the installation under maximum load..... 3% lighting  
5% power

**Cable Sockets**, are the ends of all cables having a sectional area of 0.04 square inch and above provided with soldering sockets (solderless)..... yes..... **Paper Insulated and Varnished Cambric Insulated Cables**.

\*If conductors are ~~XXXX~~ 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 ~~XXXXXX~~..... yes

**Support and Protection of Cables**, state how the cables are supported and protected..... in conduit on fore and aft walkway, strapped to joiner work in quarters and on steel hangers in machinery spaces.

~~XXXXXX~~..... -..... ~~XXXXXX~~..... 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..... in waterproof connection 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..... -..... state the material of which the bushes are made..... -

**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..... Emerg. swbd. is normally energized from main swbd. emergency generator is driven by diesel engine.

**Navigation Lamps**, are these separately wired..... 0..... 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..... yes

**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  
pump room lighted by explosion proof fixtures (relamping done outside pump room)

no cables or switches are located in pump room..... how are the cables led..... -

where are the controlling switches situated..... pump room control station in CO2 rm. upper deck

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..... -

**Searchlight Lamps**, No. of..... 1..... whether fixed or portable..... fixed..... are their fittings as per ~~XXX~~ A.I.E.E. Rules..... -

**Arc Lamps**, other than searchlight lamps, No. of..... -..... 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  
(as per A.I.E.E. Stds.)

are the brushes, brush holders, terminals and lubricating arrangements as per ~~XXX~~ 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..... -

..... if not of this type, state distance of the combustible material horizontally or vertically above the motors..... -..... and..... -

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 ~~XXX~~ yes..... (as per A.I.E.E. Stds.)

are required, are these fitted as per Rule..... -..... **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, light and fittings..... yes (as approved)..... are all fuses of the filled cartridge type..... yes..... (as per A.I.E.E. Stds.)

are they of an approved type..... -

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.	Amperes.	Revs. per Min.		Fuel Used.	Flash Point of Fuel.
MAIN	2	400	450	642	1200	Steam Turbine		
<del>XXXXXXXX</del>								
EMERGENCY	1	60	450	96	1200	Diesel Engine	#2 Diesel Oil	150° F Min.
ROTARY TRANSFORMER	2	5	120	41.7	1750	Motor		

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.	In Circuit.	AMPERES.			
MAIN GENERATOR	2	.943	61	.099	642	882	30	VC	L & A
<del>EQUALIZER CONNECTIONS</del>									
<del>AUXILIARY GENERATOR</del>									
EMERGENCY GENERATOR	1	.104	19	.083	100	158	10	VC	L & A
ROTARY TRANSFORMER (MOTOR)	1	.0206	7	.030	11	22	10	VC	L & A
ROTARY TRANSFORMER (GENERATOR)	1	.0206	7	.061	417	55.5	10	VC	L & A
ENGINE ROOM lighting	1	.0521	7	.097	48	99	50	VC	L & A
BOILER ROOM lighting	1	.0261	7	.068	26	65	75	VC	L & A
AUXILIARY SWITCHBOARDS									
ACCOMMODATION									
Midship Ctrs. Ltg.	1	.1318	19	.094	63	185	350	VC	L & A
Upper Dk. Aft Ltg.	1	.0521	7	.097	42	99	125	VC	L & A
Poop Dk. Ltg.	1	.0261	7	.068	44	65	150	VC	L & A
WIRELESS	1	.0521	7	.097	30	99	400	VC	L & A
SEARCHLIGHT	1	.008	7	.038	9	30	30	VC	L & A
MASTHEAD LIGHT	1	.003	7	.024	0.5	11.5	230	RC	L & A
SIDE LIGHTS	1	.003	7	.024	0.5	11.5	50	RC	L & A
COMPASS LIGHTS									
<del>POOP LIGHTS</del>									
<del>CARGO LIGHTS</del>									
Midship Water Heater	1	.005	7	.030	9	22	40	VC	L & A
HEATERS (Generator)	1	.005	7	.030	5.4	22	30	VC	L & A

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.	AMPERES.			
1st stage heater & drain cool	2	1	.005	7	.030	20	22	50	VC	L & A
Engine Rm. Bilge Pump	1	1	.005	7	.030	14	22	80	VC	L & A
Cargo Stripping Pump	1	1	.1659	19	.105	125	217	60	VC	L & A
Main Condensate Pump	2	1	.0206	7	.061	38	55.5	60	VC	L & A
SANITARY PUMP	1	1	.005	7	.030	20	22	65	VC	L & A
CIRC. SEA WATER PUMPS	1	1	.1659	19	.105	150	217	60	VC	L & A
DRINKING WATER PUMPS	2	1	.005	7	.030	1.8	22	75	VC	L & A
AIR COMPRESSORS	2	1	.0206	7	.061	38	55.5	70	VC	L & A
WASH WATER PUMP	2	1	.005	7	.030	1.8	22	80	VC	L & A
ENGINE TURNING GEAR	1	1	.005	7	.030	11	22	50	VC	L & A
Lube Oil Cooler Pump	2	1	.005	7	.030	14	22	70	VC	L & A
LUBRICATING OIL PUMPS	2	1	.0206	7	.061	33	55.5	80	VC	L & A
OIL FUEL TRANSFER PUMP										
Fuel Oil Serv. Pump	2	1	.005	7	.030	14	22	90	VC	L & A
Emer. Forced Draft Fans	1	1	.005	7	.030	3.2	22	75	VC	L & A
FORCED DRAFT FANS	3	1	.1318	19	.094	113	185	75	VC	L & A
Aux. Cond. Pump	1	1	.0206	7	.061	38	55.5	60	VC	L & A
Aux. Circ. Pump	1	1	.0261	7	.068	50	65	60	VC	L & A
STEERING GEAR—										
(a) MOTOR GENERATOR										
(b) MAIN MOTOR	2	1	.0521	7	.097	63	99	150	VC	L & A
Emer. Feed Pump	1	1	.005	7	.030	7.5	22	75	VC	L & A
Emer. F.O. Service Pump	1	1	.005	7	.030	2.5	22	75	VC	L & A
Refrig. Compressor	2	1	.026	7	.068	11	65	600	VC	L & A
" " " "	2	1	.005	7	.030	11	22	90	VC	L & A
Refrig. Cond. Circ. Pump	1	1	.005	7	.030	1.8	22	90	VC	L & A
" " " "	2	1	.005	7	.030	2.5	22	90	VC	L & A
Brine & Cond. Pump	2	1	.005	7	.030	7.5	22	80	VC	L & A
L.O. Purifier Pump	2	1	.005	7	.030	3.2	22	65	VC	L & A
Comp. Cont. Air pump	1	1	.005	7	.030	11	22	75	VC	L & A
Evap. Feed pump	1	1	.005	7	.030	11	22	75	VC	L & A
Boiler Comp. Pump	1	1	.005	7	.030	11	22	80	VC	L & A
Lathe	1	1	.005	7	.030	11	22	90	VC	L & A
Drill Press	1	1	.005	7	.030	4.6	22	90	VC	L & A
Grinder	1	1	.005	7	.030	1.8	22	90	VC	L & A
Shaper	1	1	.005	7	.030	4.6	22	90	VC	L & A
Boiler Rm. Vent Sup. Exh.	2	1	.008	7	.038	20	30	90	VC	L & A
FRESH WATER PUMP	2	1	.005	7	.030	6.4	22	90	VC	L & A
Eng. " " " "	2	1	.005	7	.030	17.2	22	90	VC	L & A
Hospital Exhaust Fan	1	1	.005	7	.030	0.7	22	100	VC	L & A
Air Ctrs. Supply Fan	2	1	.005	7	.030	4.6	22	100	VC	L & A
Pump Rm. Exh. Fan	1	1	.005	7	.030	4.6	22	90	VC	L & A
Aft Ctrs. Exh. Fan	3	1	.005	7	.030	1.8	22	90	VC	L & A
Galley Exh. Fan	1	1	.005	7	.030	1.8	22	100	VC	L & A
Batt. Rm. Exh. Fan	1	1	.005	7	.030	0.6	22	40	VC	L & A
Midship Ctrs. Supply Fan	1	1	.005	7	.030	3.2	22	30	VC	L & A
STEERING GEAR—										
Midship Ctrs. Exh. Fan	1	1	.005	7	.030	1.8	22	30	VC	L & A
Midship Fresh Water Pump	1	1	.005	7	.030	1.8	22	30	VC	L & A
Midship Fresh Water Pump	1	1	.005	7	.030	1.8	22	30	VC	L & A
Workshop Motor Trans. P.	1	1	.005	7	.030	1.8	22	30	VC	L & A

Compressors for refrigeration fwd.

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.

*Sun Shipbuilding and Dry Dock*  
*T. M. Jackson* — Electrical Engineers.

Date *Aug 25-49*

COMPASSES.

Distance between electric generators or motors and standard compass..... 15 Feet (Motor for automatic whistle timing)

Distance between electric generators or motors and steering compass..... 15 Feet "

The nearest cables to the compasses are as follows:—

A cable carrying..... 25 Ampères..... 1 feet from standard compass..... 1 feet from steering compass.

A cable carrying..... 2 Ampères..... 10 feet from standard compass..... 10 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..... any course in the case of the standard compass, and nil degrees on..... any course in the case of the steering compass.

Builder's Signature..... Date.....

Is this installation a duplicate of a previous case..... no If so, state name of vessel.....

General Remarks (State quality of workmanship, opinions as to class, &c. The electrical equipment of this vessel.....) has been installed under Special Survey and in accordance with the approved plans and New York letters; the workmanship and materials are good.

The installation has been examined under full working conditions, tested as per Rule, and found satisfactory, and, in our opinion, is eligible to have the Society's Classification without special notation.

See separate report for the 400 K.W. Generator sets.

*Note sent 26/10/49*

Total Capacity of Generators 860 ✓ Kilowatts.

The amount of Fee ... .. £ : : When applied for, 18 Jul. 19 49 per F.A.G. When received. Traveling Expenses (if any) £ : : 23 Aug. 19 49

*[Signature]*  
Surveyor to Lloyd's Register of Shipping.

Committee's Minute..... NEW YORK AUG 31 1949 *[Signature]*

Assigned Elec. light.....

Im-5-44—Transfer. Printed in U.S.A. (The Surveys are requested not to write on or below the space for Committee's Minute)



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