

REPORT ON ELECTRICAL EQUIPMENT.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

Received at London Office

NO. 22 1937

Date of writing Report 28th Oct 1937 When handed in at Local Office 28/10/ 1937 Port of YOKOHAMA
 No. in Survey held at YOKOHAMA Date, First Survey 10-7-37 Last Survey 22nd Oct 1937
 Reg. Book. (Number of Visits 9)
 on the Steel Screw M.V. YUKAGIR Tons { Gross 1435
 Net 860
 Built at Yokohama By whom built Mitsubishi Jukogyo K.K. Yokohama Dock Yard No. 264 When built 1937
 Owners Union of Soviet Socialist Republics Port belonging to MURMANSK.
 Electric Light Installation fitted by Mitsubishi Jukogyo K.K. Yokohama Dock Contract No. 264 When fitted 1937
 Is the Vessel fitted for carrying Petroleum in bulk Yes.

System of Distribution Two wire insulated system

Pressure of supply for Lighting 110 volts, Heating 110 volts, Power 110 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 ✓, 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 ✓

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 Forward end port & starboard side, bottom platform of 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 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 Bottom platform starboard side of Engine room

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 ✓, 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 For each generator:— 1 D.P. Air circuit breaker with D.P.S.T. 300A knife switch with fuses. For outgoing circuits 17 D.P.O.T. knife switches with fuses.

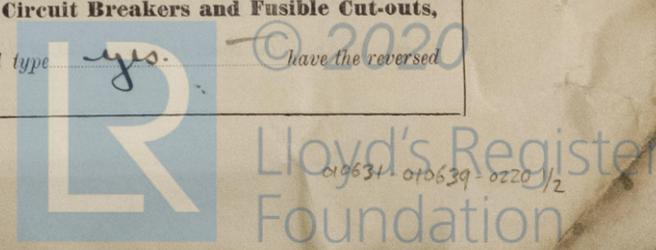
Are turbine driven generators fitted with emergency trip switch as per rule ✓ Are cupboards or compartments containing switchboards composed of fire-resisting material or lined with approved material yes

Instruments on main switchboard Two ammeters Two voltmeters ✓

synchronising device for paralleling purposes. For compound machines is the ammeter connected on the opposite pole to equaliser connection ✓

Earth Testing, state what means are provided at the main switchboard for indicating the state of the insulation of the system Voltmeter

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 no



current protection devices been tested under working conditions

construction, protection, insulation, material, and position of these as per rule **Joint Boxes, Section and Distribution Boards**, is the **yes**

Cables: Single, twin, concentric, or multicore **Single** 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 **yes**

any point of the installation under maximum load **2.5 Volts** **yes**

Fall of Pressure, state maximum between bus bars and **yes**

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, rackets 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 **L.C. Armoured** **yes**

Support and Protection of Cables, state how the cables are supported and protected **Perforated plates & clips & gas tight tubing** **yes**

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 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 **Insulated terminals in metal boxes** **yes**

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** **yes**

Earthing Connections, state what earthing connections are fitted and their respective sectional areas **none** **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 **In special room on starboard side of main deck, aft, driven by an oil engine, started by hand.** **yes**

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 **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 **guards** **yes**

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 fittings** **yes**

through gas tight tubing **yes**

where are the controlling switches situated **outside space** **yes**

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 **Two** **yes**, whether fixed or portable **Fixed** **yes**, are their fittings as per Rule **yes**

Arc Lamps, other than searchlight lamps, No. of **yes**, 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 **yes**

if not of this type, state distance of the combustible material horizontally or vertically above the motors **yes**

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 **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	Two	27 each	110	245	600	Oil engine	Crude Oil	Above 150° F	
AUXILIARY						"	"	"	
EMERGENCY	One	Size	110	545	800	"	"	"	
ROTARY TRANSFORMER									

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. Mm.	No.	Diameter.	In Circuit.	Rule.			
MAIN GENERATOR	1	258	61	2.35	245	288	45	Rubber	L.C. Armoured
EQUALISER CONNECTIONS									
AUXILIARY GENERATOR									
EMERGENCY GENERATOR	1	258	19	1.30	545	64	4	"	"
ROTARY TRANSFORMER MOTOR GENERATOR									
ENGINE ROOM	1	4.50	7	.90	8	24	20	"	"
Boiler Room	1	4.50	7	.90	8	24	20	"	"
AUXILIARY SWITCHBOARDS									
H. Distribution Board	1	4.50	7	.90	20	24	.6	"	"
B. " "	1	4.50	7	.90	6.2	24	18	"	"
C. " "	1	4.50	7	.90	11.2	24	13	"	"
D. " "	1	4.50	7	.90	12.2	24	10	"	"
ACCOMMODATION									
Forward	1	25.8	19	1.30	44.2	64	165	"	"
Aft	1	14.5	7	1.63	23.4	46	50	"	"
WIRELESS	1	14.5	7	1.63	4	46	170	"	"
SEARCHLIGHT	1	1.95	1	1.63	9	12.9	15	"	"
MASTHEAD LIGHT	1	1.95	1	1.63	365	12.9	50	"	"
SIDE LIGHTS	1	1.95	1	1.63	365	12.9	10	"	"
COMPASS LIGHTS	1	1.95	1	1.63	09	12.9	10	"	"
POOP LIGHTS	1	1.95	1	1.63	.18	12.9	200	"	"
CARGO LIGHTS									
ARC LAMPS									
HEATERS									

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. Mm.	No.	Diameter.	In Circuit.	Rule.			
BALLAST PUMP										
MAIN BILGE LINE PUMPS										
GENERAL SERVICE PUMP	1	1	14.5	7	1.63	44	46	55	Rubber	L.C. Armoured
EMERGENCY BILGE PUMP										
Oil Sump Pumps	2	1	14.5	7	1.63	44	46	19	"	"
CIRC. SEA WATER PUMPS										
CIRC. FRESH WATER PUMPS										
AIR COMPRESSOR										
FRESH WATER PUMP	1	1	4.50	7	.90	10	24	25	"	"
ENGINE TURNING GEAR	1	1	14.5	7	1.63	27	46(2hr)	22	"	"
ENGINE REVERSING GEAR										
LUBRICATING OIL PUMPS	1	1	4.50	7	.90	14.5	24	18	"	"
OIL FUEL TRANSFER PUMP	1	1	4.50	7	.90	14.5	24	19	"	"
WINDLASS										
Oil burning unit under forced draught fan	1	1	4.50	7	.90	9.7	24	19	"	"
WINCHES AFT										
Galley Range motor	1	1	4.50	7	.90	9.2	24	20	"	"
STERING GEAR										
(a) MOTOR GENERATOR	1	1	64.5	19	2.10	12.2	142(1/2hr)	75	"	"
(b) MAIN MOTOR	1	1	14.5	7	1.63	41.5	47(1/2)	70	"	"
WORKSHOP MOTOR	1	1	4.5	7	.90	10	24	13	"	"
Grinding motor	1	1	4.5	7	.90	22.5	24	13	"	"
Refrigerating motor	1	1	14.5	7	1.63	42.5	47	40	"	"
F.O. l.o. purifier	1	1	4.5	7	.90	22.5	24	17	"	"

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.

H. S. S. S. S.

Electrical Engineers.

Date Oct. 22, 1937

COMPASSES.

Distance between electric generators or motors and standard compass 4.4 M

Distance between electric generators or motors and steering compass 5.8 M

The nearest cables to the compasses are as follows:—

A cable carrying .09 Ampères 0.6 feet from standard compass 0.3 feet from steering compass.

A cable carrying .09 Ampères 0.8 feet from standard compass 0.6 feet from steering compass.

A cable carrying 0.18 Ampères 1.6 feet from standard compass 1.3 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 ✓ degrees on ✓ course in the case of the standard compass, and ✓ degrees on ✓ course in the case of the steering compass.

M. Hattery

Builder's Signature.

Date Oct. 22, 37.

Is this installation a duplicate of a previous case yes If so, state name of vessel NENETS. Report now forwarded.

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

vessel has been fitted onboard under special survey in accordance with the Rules & approved plans. Materials and workmanship good. On completion of fitting all tried under full working conditions & megger tested with satisfactory results.

A Challenger Type Echo sounding Geol made by H. Hughes & Sons, Ltd, London has been fitted. The Transmitter and Receiver which are fitted in the pumproom are enclosed in steel gas tight boxes and all cables are lead through gas tight tubing. The Contact which is on main deck, is also enclosed in a gas tight box.

The Electric Installation of this vessel is eligible in my opinion to be classed with the Machinery LMC 10-34.

W. J. J.
29/11/37.

Total Capacity of Generators 60 Kilowatts.

The amount of Fee ... £ 28 : 10 : 19-10-1937

Travelling Expenses (if any) £ : : 14/2-19-38

Committee's Minute TUE. 7 DEC 1937

Assigned

See Yha. J.E. 6236

J. Milolas

Surveyor to Lloyd's Register of Shipping.



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2m.534.—Transfer.
The Surveyors are requested not to write on or below the space for Committee's Minute.