

3.7.16.27.30

n. 29 Dec. 1936

Rpt. 13.

No. 11728

REPORT ON ELECTRICAL EQUIPMENT.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL) -4 MAY 1936

Received at London Office

Date of writing Report 10 When handed in at Local Office 2.5 1936 Port of Belfast.
 No. in Survey held at Belfast Date, First Survey 21st Jan. 1936 Last Survey 25th April 1936
 Reg. Book. (Number of Visits 2)
 38784 on the M.V. "Kanionbla"
 Tons Gross 10950 Net
 Built at Belfast By whom built Harland & Wolff Ltd. Yard No. 955 When built 1936
 Owners McIlwraith, McEachran, Ltd. Port belonging to Melbourne.
 Electric Light Installation fitted by Harland & Wolff Ltd. Contract No. 955 When fitted 1936.
 Is the Vessel fitted for carrying Petroleum in bulk No.

System of Distribution Two-wire direct current system.

Pressure of supply for Lighting 220 volts, Heating 220 volts, Power 220 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 Main generators in aux. Mach. room + Emergency generator in Emergency 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 on Platform at Forward end of Auxiliary Machinery Space. 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 Double Pole, overload, reverse current circuit breaker with interlocked equaliser switch for each generator, & D.P. O/L. circuit breaker, or D.P. switch & fuses for each outgoing circuit.

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 4 ammeters 2

voltmeters Arranged — 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 connected to bus-bars through switches & fuses 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. 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 — Fall of Pressure, state maximum between bus bars and

any point of the installation under maximum load 900v tunnel vent. fan ✓ 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 — 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 ✓ Lead covered & Armoured

Are cables in machinery spaces, galleys, laundries, bathrooms and lavatories lead covered or run in conduit in machy spaces etc.

Support and Protection of Cables, state how the cables are supported and protected Hard rubber & lead covered, armoured and

braided cables supported by clips on perforated sheet metal plating generally throughout. In public rooms cables are of 9/16 type run in wood casings.

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 in specially constructed & insulated joint 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 Sheet lead /

Earthing Connections, state what earthing connections are fitted and their respective sectional areas All metal fittings not fixed in direct

metallic contact with ships hull are fitted with earthed connecting wire of cross-section equal to that of working conductor

, 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 dyno fitted in special compartment

on prop., driven by direct coupled petrol/paraffin engine & controlled from emergency switchboard in same compartment.

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 when fittings in cargo.

Holes fitted between beams & controlled by D.P. switches external to cargo holds.

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

, how are the cables led

where are the controlling switches situated

are all fittings suitably ventilated — , are all switches and lampholders constructed wholly of non-ignitable, non-absorbent materials

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 None, whether fixed or portable — , 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 ✓ except , are they protected from mechanical injury and damage from

water, steam or oil Yes ✓ are their axes of rotation fore and aft vertical motors, 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 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

are all fuses of the filled cartridge type — 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 ✓

MOTOR CONDUCTORS (CONTINUED)

DESCRIPTION	NO. OF MOTORS.	CONDUCTORS.		COMPOSITION OF STRAND NO.	DIA.	TOTAL MAXIMUM CURRENT, AMPS.	APPROXIMATE LENGTH LEAD & RETURN FEET	INSULATED WITH.	HOW PROTECTED.
		NO. PER POLE	TOTAL EFFECTIVE AREA PER POLE SQ. INS.						
Ventilation Fans 325 B.H.P.	19	1	0.0045	7	.029	13	18.2	210	Rubber
do. do 5.5 "	3	1	0.01	7	.044	22	31	270	do
Motor R.R. do. 4.5 "	2	1	0.0145	7	.052	30	37	250	do.
do. do. 1.5 "	2	1	0.04	19	.052	60	64	240	do.
Tunnel do. 1.5 "	1	1	0.003	3	.036	625	12	540	do.
Waste Heat Fan	1	1	0.0045	7	.029	15	18.2	210	do.
Oil Purifiers	4	1	0.0045	7	.029	10.8	18.2	135	do.
Hot S.W. Pumps	2	1	0.01	7	.044	30	31	110	do.
Purified Oil do.	2	1	0.003	3	.036	6.8	12	150	do.
Sprinkler Pump	1	1	0.25	37	.093	198	214	275	do.
do. Compressor	1	1	0.003	3	.036	8.7	12	230	do.
L.O ₂ do.	2	1	0.20	37	.083	155	184	150	do.
Refri. & Brine Pumps	3	1	0.0045	7	.029	15.3	18.2	180	do.
Boiling Water do.	1	1	0.0045	7	.029	15.3	18.2	105	do.
L.T. Door Motors	4	1	0.0225	7	.064	28	46	600	do.
Passenger Lift.	1	1	0.01	7	.044	21	31	150	do.
Pantry do.	1	1	0.003	3	.036	8.3	12	135	do.
Stores. do.	1	1	0.0045	7	.029	12	18.2	60	do.
Potato Peeler.	1	1	0.002	3	.029	2.5	7.8	90	do.
Dish Washer	1	1	0.002	3	.029	2.7	7.8	90	do.
do. do. Pump.	1	1	0.002	3	.029	2.5	7.8	90	do.
Doan Mixer.	1	1	0.0045	7	.029	12.8	18.2	60	do.
Bake Mixer 1/4 B.H.P.	1	1	0.002	3	.029	3.5	7.8	36	do.
do. do. 1/3 "	1	1	0.002	3	.029	1.7	7.8	85	do.
Cincer.	1	1	0.002	3	.036	8	12	30	do.
Silver Burnisher	1	1	0.002	3	.029	2.5	7.8	105	do.
do. do.	1	1	0.002	3	.029	1.7	7.8	105	do.
Gallmark Machine	3	1	0.002	3	.029	4.8	7.8	75	do.

PARTICULARS OF GENERATING PLANT.

DESCRIPTION OF GENERATOR.	No. of	RATED AT				DRIVEN BY	WHERE DRIVEN BY AN INTERNAL COMBUSTION ENGINE	
		Kilowatts.	Volts.	Ampères.	R.P.M.		Fuel Used.	Flash Point of Fuel.
MAIN	4	300	220	1364	270	Diesel Engine		
AUXILIARY								
EMERGENCY	1	50	220	227	1000	Petrol/paraffin engine		
ROTARY TRANSFORMER								

GENERATOR, LIGHTING AND HEATING CONDUCTORS.

DESCRIPTION.	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.	Circuits.	Rate.			
MAIN GENERATOR	2	1.5	Copper bars	1364	-	42	Bare	Enclosed in expanded metal case on iron framework	
EQUALISER CONNECTIONS	1	0.75	do. do.	1364	-	21	Bare	do.	
AUXILIARY GENERATOR									
EMERGENCY GENERATOR	1	0.30	37 ✓ 103"	227	240	36	Rubber	Hard rubber	
ROTARY MOTOR									
TRANSFORMER GENERATOR									
ENGINE ROOM Lighting	5	0.225	7	.064	24 ✓ 46	100	Rubber	Hard rubber	
aux. eng.		0.225	7	.064	25 ✓ 46	100	do.	do.	
BUNKER ROOM Lighting	1	0.007	7	.036	13 ✓ 24	30	do.	do.	
AUXILIARY SWITCHBOARDS									
A 1st Preference		0.40	61	.093"	264	288	250	Rubber	Hard rubber
A 2nd. do.		0.75	91	.103"	456	461	250	do.	do.
B 1st. do.		0.15	37	.072"	145	152	280	do.	do.
B 2nd. do.		0.60	91	.093"	350	384	280	do.	do.
C 1st. do.		0.40	61	.093"	360	452	420	do.	do.
C 2nd. do.		0.60	91	.093"	370	459	420	do.	do.
D 1st. do.		0.30	37	.103"	254	351	730	do.	do.
D 2nd. do.		0.60	91	.093"	381	499	730	do.	do.
E 1st. do.		0.12	37	.064"	120	130	96	do.	do.
E 2nd. do. (A)		0.75	81	.103"	447	461	96	do.	do.
E 2nd. do. (B)		0.85	127	.093"	470	512	96	do.	do.
ACCOMMODATION									
F Section (A)		0.75	91	.103"	435	461	246	do.	do.
F do. (B)		0.75	91	.103"	452	461	246	do.	do.
G do. (A)		0.75	91	.103"	440	461	246	do.	do.
G do. (B)		0.75	91	.103"	449	461	246	do.	do.
Emergency Board Interconn	1	0.40	61	.093"	212	288	800	do.	do.
WIRELESS	1	0.225	7	.064	14 ✓ 46	840	Rubber	Hard Rubber	
SEARCHLIGHT									
MASTHEAD LIGHT	1	0.002	3	.029	0.18 ✓ 7.8	900	Rubber	Hard Rubber	
SIDE LIGHTS	1	0.002	3	.029	0.18 ✓ 7.8	102	do.	Lead Sheath	
COMPASS LIGHTS	1	0.002	3	.029	0.114 ✓ 7.8	40	do.	do.	
POOP LIGHTS									
CARGO LIGHTS	1	0.06	19	.064	62 ✓ 83	380	Rubber	Hard Rubber	
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.	Rate.			
BALLAST PUMP	1	1	0.075	19	.072	93	97	60	Rubber	Hard Rubber
MAIN BILGE LINE PUMPS	2	1	0.04	19	.052	55	64	180	do.	do.
GENERAL SERVICE PUMP										
EMERGENCY BILGE PUMP	1	1	0.10	19	.083	97	118	600	Rubber	Lead Sheath
Fire & SANITARY PUMP	1	1	0.075	19	.072	93	97	75	do.	Hard Rubber
CIRC. SEA WATER PUMPS	2	1	0.20	37	.083	170	184	300	do.	do.
CIRC. FRESH WATER PUMPS	2	1	0.04	19	.052	59	64	150	do.	do.
AIR COMPRESSOR	2	1	0.4	61	.093	320	357	120	do.	do.
FRESH WATER PUMP	2	1	0.01	7	.044	30	31	120	do.	do.
ENGINE TURNING GEAR	2	1	0.04	19	.052	58.5	68	150	do.	do.
ENGINE REVERSING GEAR										
LUBRICATING OIL PUMPS	2	1	0.20	37	.083	170	184	245	do.	do.
OIL FUEL TRANSFER PUMP	2	1	0.01	7	.044	27	31	210	do.	do.
WINDLASS	1	1	0.30	37	.103	300	351	205	do.	do.
WINCHES, FORWARD	6	1	0.12	37	.064	154	160	135	do.	do.
do. do.	2	1	0.12	37	.064	146.5	160	150	do.	do.
WINCHES, AFT	6	1	0.12	37	.064	146.5	160	240	do.	do.
Warping Winch	1	1	0.12	37	.064	146.5	160	90	do.	do.
STEERING GEAR										
(a) MOTOR GENERATOR										
(b) MAIN MOTORS	2	1	0.15	37	.072	135	152	690	Rubber	Hard Rubber
WORKSHOP MOTORS	3	1	0.003	3	.036	9.3	12	80	do.	do.
VENTILATING FANS 17.8 H.P.	2	1	0.002	3	.029	7	7.8	150	do.	do.
do. 22	1	1	0.002	3	.029	1.25	7.8	180	do.	do.
do. 875	2	1	0.002	3	.029	3.5	7.8	200	do.	do.
do. 1.25	3	1	0.002	3	.029	5	7.8	270	do.	do.
do. 1.5	6	1	0.003	3	.036	6	12	180	do.	do.
do. 1.75	2	1	0.003	3	.036	7	12	90	do.	do.
do. 2.5	2	1	0.0045	7	.029	10	18.2	115	do.	do.

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 APRIL 30TH. 1936.

COMPASSES.

Distance between electric generators or motors and standard compass 12 ft. from Smoke Detector Fan Motor

Distance between electric generators or motors and steering compass 11 ft. from do. do.

The nearest cables to the compasses are as follows:—

A cable carrying 20 Ampères 11 feet from standard compass 9 feet from steering compass.

A cable carrying 24 Ampères 11 feet from standard compass 9 feet from steering compass.

A cable carrying 14 Ampères 23 feet from standard compass 17 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 course in the case of the standard compass, and Nil degrees on All course in the case of the steering compass.



Builder's Signature.

Date APRIL 30TH. 1936.

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.) This installation has been fitted in board under special survey & in accordance with the approved plans & has been tested under full working conditions and found in order. The materials and workmanship have been found to be good and sound.

Noted
H.W.
5.5.36

In this Transfer
The Surveyors are requested not to write on or below the space for Committee's Minute.

Total Capacity of Generators 1250 Kilowatts.

The amount of Fee £ 76 : 5 When applied for,
(2 due 1st May) : 5 2nd May 36.
Traveling Expenses (if any) £ : When received.
13.5 1936 14/5

R.C. Clayton & Charles of Hunter
Surveyor to Lloyd's Register of Shipping.

Committee's Minute

FRI. 15 MAY 1936

Assigned

See Bel J.E. 11726