

# REPORT ON ELECTRIC FITTINGS.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

30 JAN 1934

Received at London Office.....

Date of writing Report 19 29.1.34 When handed in at Local Office 29.1.34 Port of Newcastle-on-Tyne

No. in Survey held at Newcastle Date, First Survey 26 Oct/33 Last Survey 27/12/1933

Reg. Book. Supp. 41067 on the M.S. "PORT CHALMERS" (Number of Visits..... 14)

Tons { Gross Net

Built at Wallsend-on-Tyne. By whom built Swan Hunter & Wigham Richardson Ltd. Yard No. 1483. When built 1933.

Owners Commonwealth & Dominion Line Port belonging to

Electric Light Installation fitted by Swan Hunter & Wigham Richardson Ltd. Contract No. 1483. When fitted 1933.

Is the Vessel fitted for carrying Petroleum in bulk no.

System of Distribution Double Wire 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 rating 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.

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 Engine Room Port and Starboard sides. Are the lubricating arrangements of the generators as per Rule yes.

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 Forward end of Engine Room, fixed to bulkhead.

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.

if semi-insulating material is used, are all conducting parts insulated from the slab with mica or mica-nite or other non-hygroscopic insulating material, and the slab similarly insulated from its framework 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 yes, proportion of omnibus bars yes.

individual fuses to voltmeter, pilot or earth lamp yes, connections of switches yes.

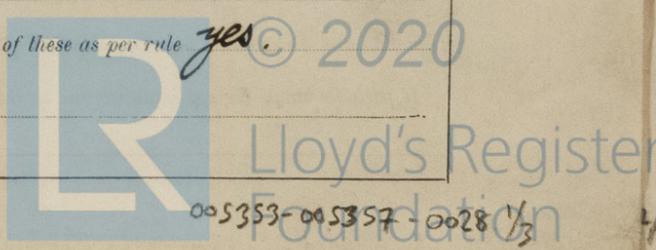
Main Switchgear, description of switchgear for each generator and each outgoing circuit, and arrangement of equalizer switches 3 pole circuit breakers on generator, one pole acting as an equaliser switch; outgoing circuits having double pole circuit breakers or double pole switch and fuses according to capacity of circuit.

Instruments on main switchboard 4 ammeters 3 voltmeters - synchronising device for paralleling purposes.

Earth Testing, state what means are provided at the main switchboard for indicating the state of the insulation of the system Earth lamps coupled through switches & fuses to earth.

Switches, Circuit Breakers and Fusible Cut-outs, do these comply with the requirements of the Rules yes.

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



M.V. "PORT CHALMERS." MOTOR CONDUCTORS (CONT'D)

DESCRIPTION.	No OF MOTORS	CONDUCTORS. No PER POLE	TOTAL EFFECTIVE AREA PER POLE SQ. INS.	COMPOSITION OF STRAND.		TOTAL MAXIMUM CURRENT. AMPERES.		APPROXIMATE LENGTH (LEAD & RETURN) FEET	INSULATED WITH	HOW PROTECTED.
				No	DIAMETER	IN CIRCUIT	RULE			
FUEL VALVE COOLING PUMP.	2	1	.00455	4	.029	13.5	18.2	180	V.I.R.	Lead covered, Arm'd, & Braided.
AUXIL. ENGINE VENT FAN.	1	1	.00194	3	.029	1.0	4.8	20	-do-	-do-
REFRIG. COMPRESSORS.	3	1	.44350	91	.103	605	664	120	VARNISHED CAMBRIC.	-do-
BRINE PUMPS.	4	1	.03960	19	.052	55	64	120	V.I.R.	-do-
BRINE PUMP.	1	1	.00401	4	.036	14	24	120	-do-	-do-
ROTARY COCK MOTOR.	1	1	.00194	3	.029	2.6	4.8	25	-do-	-do-
REFRIG. MACHINERY ROOM. 12" PROPELLER FAN.	1	1	.00194	3	.029	.5	4.8	90	-do-	-do-
18" PROPELLER FAN.	1	1	.00194	3	.029	1.3	4.8	90	-do-	-do-
TWEEN DECK PROPELLER FANS.	2	1	.00194	3	.029	3.4	4.8	150	-do-	-do-
AEROTO FANS.	5	1	.01462	4	.052	31.	34	80	-do-	-do-
COOLER FANS.	5	1	.00299	3	.036	4.8	12	60	-do-	-do-

W.T. Badger

Cables: Single, twin, concentric, or multicore *Single* are the cables insulated and protected as per Tables IV or V of the Rules *yes*.

Fall of Pressure, state maximum between bus bars and any point of the installation under maximum load *5 Volts on Power & Heating, 5 Volts on Lighting.*

Cable Sockets and other connections, are the ends of all cables having a sectional area of 0.04 square inch and above provided with soldering sockets *yes*.

Paper Insulated Cables. If cables are paper covered, is the dielectric at the exposed ends of the conductor protected from moisture by being suitably sealed with insulating compound *nil*.

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*.

Support and Protection of Cables, state how the cables are supported and protected *Lead covered Armoured & Braided cables slipped to heavy tray plating and protected by perforated tray plating in tween deck; Lead covered & Braided in Accommodation; Lead covered Armoured & Braided on tray plating in Machinery spaces.*

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, if lights are fitted, are the cables and fittings in accordance with the special requirements *yes*.

Joints in Cables, state if any, and how made, insulated, and protected *None made.*

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 *-*, 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 *Emergency generator & switchboard in dynamo room Port Deck after mid. Circuits on switchboard controlled by double pole switches & fuses. Generator driven by Diesel engine.*

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 *-*, 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 *-*.

Searchlight Lamps, No. of *-*, whether fixed or portable *-*, are their fittings as per Rule *-*.

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

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 *-*, If portable lamps for use in dangerous spaces are supplied, are they of a type approved by the Home Office *-*.



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 ...	3	375	225.	1666.	350.	Diesel Oil Engine.		
AUXILIARY ...								
EMERGENCY ...	1	50	225.	222	400	- ditto -		
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 Effective Area per Pole Sq. Ins.	No.	Diameter.	In Circuit.	Rule.			
MAIN GENERATOR ...	2	2.07520	124	.103	1666	1648. ✓	150.	Varnished cambrie.	Lead Covered, Armoured and braided.
EQUALISER CONNECTIONS ...	1	1.03760	124	.103	833	839. ✓	45.		
AUXILIARY GENERATOR ...	1	.19640	34	.083	224	266. ✓	60.		
ROTARY TRANSFORMER MOTOR GENERATOR ...									
ENGINE ROOM ...	2	.20180	19	.083	310	344. ✓	825	Varnished cambrie.	Lead Covered, Armoured & Braided.
BOILER ROOM ...									
AUXILIARY SWITCHBOARDS									
FORWARD WINCH RING MAIN.	2.	.99400	61	.103	924	942. ✓	525.	- Do -	- Do -
AFTER WINCH RING MAIN.	2.	.99400	61	.103	453	942. ✓	840.	- Do -	- Do -
REFRID. MACHINERY.	3.	2.53770	124	.093	2056	2199. ✓	260	- Do -	- Do -
BAKERS OVEN.	1.	.01046	4	.044	28	31. ✓	150.	V.I.R.	- Do -
ACCOMMODATION									
HEATER CIRCUIT FORWARD.	1	.14480	34	.042	151	152 ✓	240.	- Do -	- Do -
HEATER CIRCUIT AFT.	1	.19640	34	.083	170	184. ✓	150.	- Do -	- Do -
GYRO COMPASS CIRCUIT.	1	.00401	4	.036	15	24. ✓	300	- Do -	- Do -
WIRELESS	1	.01046	4	.044	30	31 ✓	180.	- Do -	Lead Covered & Braided.
SEARCHLIGHT									
MASTHEAD LIGHT	1	.00194.	3	.029	.2	4.8. ✓	390	- Do -	Lead Coverd, Armoured & Braided.
SIDE LIGHTS	1	.00194	3	.029	.2	4.8. ✓	54.	- Do -	Lead Covered & Braided.
COMPASS LIGHTS	1	.00194	3	.029	.1	4.8. ✓	30	- Do -	- Do -
POOP LIGHTS	1	.00194	3	.029	.2	4.8 ✓	430.	- Do -	Lead Covered Armoured & Braided.
CARGO LIGHTS	1	.00194	3	.029	.4	4.8 ✓	60.	- Do -	- Do -
MAST LAMP	1	.00194	3	.029	2.3	4.8 ✓	160	- Do -	- Do -
HEATERS 500/1000 WATTS.	1	.00194	3	.029	3.0	4.8. ✓	25	- Do -	Lead Covered & Braided.
" ABOVE 1000 WATTS.	1	.00299	3	.036	5.0.	12.0. ✓	25.	- Do -	- Do -

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 Effective Area per Pole Sq. Ins.	No.	Diameter.	In Circuit.	Rule.			
BALLAST PUMP	1.	1.	.19640.	34	.083	174.	266. ✓	240.	Varnished cambrie.	Lead Covered Armoured & Braided.
MAIN BILGE LINE PUMPS	1	1	.06000	19	.064.	80	83 ✓	200	V.I.R.	- Do -
GENERAL SERVICE PUMP	1	1	.06000	19	.064	80	83 ✓	45	- Do -	- Do -
AUXIL. SANITARY EMERGENCY BILGE PUMP	1	1	.00401	4	.036	20	24 ✓	40	- Do -	- Do -
SANITARY PUMP	1	1	.06000	19	.064.	80	83 ✓	120.	- Do -	- Do -
Circ. SEA WATER PUMPS	1	1	.19640.	34	.083	174	266. ✓	180.	Varnished cambrie.	- Do -
PISTON & JACKET COOLING CIRC. FRESH WATER PUMPS	2	1	.19640.	34	.083	224	266. ✓	140	- Do -	- Do -
AIR COMPRESSOR	2	1	.40640	61	.093.	395	417. ✓	300	- Do -	- Do -
FRESH WATER PUMP	1	1	.01462	4	.052	31	34. ✓	45	V.I.R.	- Do -
ENGINE TURNING GEAR...	2	1	.06000	19	.064.	43	83 ✓	150.	- Do -	- Do -
PRIMING PUMPS. ENGINE REVERING GEAR	2	1	.00299	3	.036	9	12 ✓	100	- Do -	- Do -
LUBRICATING OIL PUMPS	2	1	.06000	19	.064	42	83 ✓	90	- Do -	- Do -
OIL FUEL TRANSFER PUMP	1	1	.01462	4	.052	35	37 ✓	80.	- Do -	- Do -
WINDLASS	1	1	.14480	34	.064	210	226 ✓	48.	Varnished cambrie.	- Do -
WINCHES, FORWARD CAPSTANS.	2	1	.24650	34	.093.	240	295 ✓	105	V.I.R.	- Do -
WINCHES, AFT	8	1	.24650	34	.093	240	295 ✓	105.	- Do -	- Do -
OIL FUEL BLOWER.	1	1	.00299	3	.036	9	12 ✓	110	- Do -	- Do -
OIL FUEL HEATER. STEERING GEAR	-	1	.00299	3	.036	9	12 ✓	110	- Do -	- Do -
(a) MOTOR GENERATOR										
(b) MAIN MOTOR	2	1	.14480	34	.042.	135	152 ✓	800	- Do -	- Do -
WORKSHOP MOTOR	1	1	.01046	4	.044	24	31 ✓	180	- Do -	Lead Covered & Braided.
VENTILATING FANS	5	1	.00455.	4	.029	11.5	18.2 ✓	120.	- Do -	- Do -
REFRID. CIRC. PUMPS.	2	1	.10090.	19	.083.	108	118 ✓	160	- Do -	Lead Covered, Arm. & Braided.
OIL FUEL TRANSFER PUMP	1	1	.01046	4	.044.	24	31. ✓	80	- Do -	- Do -
OIL FUEL TRANSFER PUMP	1	1	.00194.	3	.029	2.5	4.8 ✓	45.	- Do -	- Do -
OIL PURIFIERS.	5	1	.00299	3	.036.	11.	12. ✓	40.	- Do -	- Do -
CRANE.	1	1	.00455	4	.029.	9.	18.2 ✓	45	- Do -	- Do -
GRINDING MACHINE.	1	1	.00299.	3	.036	9.	12. ✓	45.	- Do -	- Do -
BOOSTER PUMP.	1	1	.00455	4	.029.	13.5.	18.2 ✓	120	- Do -	- Do -

Ring main for lighting throughout ship.

