

REPORT ON ELECTRICAL EQUIPMENT.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

DEC -5 1938

Received at London Office

Date of writing Report 2nd Dec 1938 When handed in at Local Office 3rd Dec 1938 Port of Leith

No. in Survey held at Leith Date, First Survey 12th Octr Last Survey 28th Nov 1938

Reg. Book 81949 on the Tonnage Screw Motor Vessel "PURIRI" (Number of Visits 14)

Tons { Gross 927.0
Net 423

Built at Leith By whom built Henry Robb Ltd Yard No. 273 When built 1938

Owners The Anchor Shipping & Foundry Co Ltd Port belonging to Nelson N.Z.

Electric Light Installation fitted by Henry Robb Ltd Contract No. When fitted 1938

Is the Vessel fitted for carrying Petroleum in bulk No

System of Distribution

Two wire parallel

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 machines over 100 kw. been inspected by the Surveyors during manufacture and testing

Have certificates for generators under 100 kw. been supplied and approved 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 Eng. Room: No 1 Port fore, No 2 Port aft, No 3 Starboard fore, 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 No woodwork near

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 Eng. Room Port Side aft

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 No woodwork near, 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 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, 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 Triple Pole with overload & reversed current trips on each generator. D.T. switches & fuses to 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 Three ammeters Three

voltmeters & 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 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* are all fuses labelled as per rule *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, XI, XII or XIII of the Rules *yes*

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 *9 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 *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 laid under machines or floorplates *no* if so, are they adequately protected *In conduit in mach. spaces*

Are cables in machinery spaces, galleys, lavatories, bathrooms and lavatories lead covered or run in conduit *Lead covered in accommodation*

Support and Protection of Cables, state how the cables are supported and protected *Brass clips for lead covered*

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 *By porcelain connectors in junction 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 *Lead*

Earthing Connections, state what earthing connections are fitted and their respective sectional areas *Metallic sheathing of wires bonded & earthed* 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 *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 *yes* are they ventilated as per Rule *yes*

Fittings, are all fittings on weather decks, in storerooms 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 stored 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* how are the cables led *yes*

where are the controlling switches situated *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 *None* whether fixed or portable *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 *Vertical pumps* 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 *No woodwork near* if not of this type, state distance of the combustible material horizontally or vertically above the motors *yes* and *yes*

have machines of over 100 BHP been inspected by the Surveyors during manufacture and testing *yes* have certificates for all motors for essential services been supplied and approved *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 flameproof type approved for use in dangerous spaces *yes*

Spare Gear, if the vessel is for open sea service have spares been supplied as per Rule *yes* are they suitably stored in dry situations *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 ...	3	Each 40	220	182	600	Diesel Engs. by Ruston & Hornsby, Gms. Rpt. No 20403	Diesel Oil	Above 150° F
AUXILIARY ...								
EMERGENCY ...								
ROTARY TRANSFORMER								

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.	Rule.			
MAIN GENERATOR ... N.1	2	.15	19	.042	182	194	124	V.I.R.	All cables run in conduit.
EQUALISER CONNECTIONS	1	.075	19	.042	91	94	62	"	"
AUXILIARY GENERATOR ... N.2	2	.15	19	.042	182	194	90	"	"
EMERGENCY GENERATOR ... N.3	2	.15	19	.042	182	194	40	"	"
ROTARY TRANSFORMER / MOTOR									
ENGINE ROOM ...	1	.0045	4	.029	15	18.2	125	"	"
BOILER ROOM ...	1	.003	3	.036	4	12	30	"	"
AUXILIARY SWITCHBOARDS									
Lighting	1	.0145	4	.052	36	34	68	"	"
ACCOMMODATION ...	1	.0045	4	.029	14	18.2	30	"	Lead covered
Battery cables	1	.004	4	.036	11	24	80	"	In conduit.
Navigation	1	.002	3	.029	2	4.8	125	"	"
WIRELESS	1	.004	4	.036	8	24	185	"	"
SEARCHLIGHT									
MASTHEAD LIGHT	1	.002	3	.029	18	4.8	300	"	"
SIDE LIGHTS	1	.002	3	.029	18	7.8	50	"	Lead sheathed.
COMPASS LIGHTS	1	.002	3	.029	.068	7.8	30	"	"
POOP LIGHTS									
CARGO LIGHTS	1	.002	3	.029	6.9	4.8	200	"	In conduit.
HEATERS									

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.	Rule.			
BALLAST PUMP ...										
MAIN BILGE LINE PUMPS	1	1	.004	4	.036	24	24	30	V.I.R.	In conduit.
GENERAL SERVICE PUMP	1	1	.004	4	.036	24	24	20	"	"
EMERGENCY BILGE PUMP										
SANITARY PUMP & G.S.	2	1	.06	19	.064	53	83	130	"	"
CIRC. SEA WATER PUMPS										
CIRC. FRESH WATER PUMPS	5	1	.01	4	.044	31	31	100	"	"
AIR COMPRESSOR	1	1	.0225	4	.064	45.5	46	120	"	"
FRESH WATER PUMP	1	1	.003	3	.036	6.25	12	60	"	"
ENGINE TURNING GEAR										
ENGINE REVERSING GEAR										
LUBRICATING OIL PUMPS										
OIL FUEL TRANSFER PUMP	1	1	.002	3	.029	6	7.8	45	"	"
WINDLASS	1	1	.06	19	.064	49	83	45	"	"
WINCHES, FORWARD	1	1	.12	34	.064	150	160 1/2	18	"	"
" Midships	1	1	.12	34	.064	150	160 1/2	60	"	"
WINCHES, AFT	1	1	.12	34	.064	150	160 1/2	45	"	"
Power to Distribution										
STEERING GEAR - Boards for winches	3	1	.15	34	.042	191	191	300	"	"
(a) MOTOR GENERATOR	2	1	.15	34	.042	191	191	100	"	"
(b) MAIN MOTOR	1	1	.0045	4	.029	16	18	150	"	"
WORKSHOP MOTOR										
VENTILATING FANS										
Fuel Oil Purifier	1	1	.002	3	.029	3.55	7.8	16	"	"
Lub Oil do	1	1	.002	3	.029	3.55	7.8	16	"	"
Refrigerator	1	1	.003	3	.036	4.5	12.0	50	"	"
Lub Oil Heater	1	1	.0045	4	.029	12.8	18.2	30	"	"
Steam Line Filter	1	1	.0145	4	.052	34	34.0	10	"	"
Pantry Hot Press	1	1	.0045	4	.029	16	18.2	60	"	"

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The Electrical Equipment is installed in accordance with the approved plans.

All Insulated Conductors are guaranteed to withstand the immersion and resistance tests specified in the Rules.

The foregoing is a correct description.

Henry Robt Lts pp. A. Wilson Electrical Engineers.

Date *2. 12. 38*

COMPASSES.

Minimum distance between electric generators or motors and standard compass *56 ft.*

Minimum distance between electric generators or motors and steering compass *50 ft.*

The nearest cables to the compasses are as follows:—

A cable carrying *0.68* Amperes *5* feet from standard compass *4* feet from steering compass.

A cable carrying *15* Amperes *5* feet from standard compass *4* feet from steering compass.

A cable carrying *2* Amperes *6* feet from standard compass *5* 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.

Henry Robt Lts pp. A. Wilson Builder's Signature.

Date *2. 12. 38*

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 Diesel driven Generators - Geminisby Rpt N° 20703 - have been efficiently fitted on board in accordance with the Rules, the materials & workmanship being sound & good. The wiring of the vessel has been carried out in a satisfactory manner, & in accordance with the approved plans. On completion the whole installation was tried out under full load & working conditions, & it was found satisfactory in all respects.

Noted
L.Y.
6/12/38.

Total Capacity of Generators *120* Kilowatts.

The amount of Fee ... £ *34 : 10 : 0* When applied for, *3/12/19.38.*

Travelling Expenses (if any) £ : : When received, *9/12/19.38*

John Houston
Surveyor to Lloyd's Register of Shipping.

Committee's Minute

TUE. 6 DEC 1938

Assigned

See Ltr J.E 19729