

REPORT ON ELECTRIC FITTINGS.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

No. 49810

Date of writing Report 6.1.29 When handed in at Local Office 11.11.29 Port of GLASGOW Received at London Office 13 NOV 1929

No. in Survey held at GLASGOW Date, First Survey 24.5.29 Last Survey 9.11.29
Reg. Book. 32102 on the M.V. RANGITANE (Number of Visits 12)

Built at CLYDEBANK By whom built J. BROWN & CO. LTD Yard No. 522 When built 1929
Owners THE NEW ZEALAND S.S. CO. LTD Port belonging to

Electric Light Installation fitted by MESSRS JOHN BROWN & CO. LTD Contract No. 622 When fitted 1929

System of Distribution TWO CONDUCTOR INSULATED

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 Are the lubricating arrangements of the generators as per Rule YES

Position of Generators 2-550 KW AND 2-150 KW IN ENGINE ROOM, 1-36 KW ON 'C' DECK AFT
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 ENGINE ROOM FORWARD
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 —, is all insulation of high dielectric strength and of permanently high insulation resistance —, if semi-insulating material is used, are all conducting parts insulated from the slab with mica or micamite 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 EACH GENERATOR HAS A TRIPLE POLE BREAKER WITH REVERSE CURRENT TRIP OVERLOAD TRIPS ARE FITTED ON NEG. AND POS. AND THE EQUALISING LINE IS INTERLOCKED WITH THE POSITIVE LINE, BRANCH CIRCUITS ARE EITHER D.P. OVERLOAD CIRCUIT BREAKERS OR D.P. SWITCHES AND FUSES.

Instruments on main switchboard 19 ammeters 1 voltmeters 1 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 EACH POLE TO EARTH THROUGH SWITCH AND LAMP

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



© 2019

Lloyd's Register
Foundation

W1137 - 0135 1/2

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 POWER 7.1 VOLTS. LIGHTING 5.1 VOLTS

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 conductors protected from moisture by being suitably sealed with insulating compound 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, valves 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 IN WOOD CASINGS IN 2ND CLASS AND LEAD COVERED AND BRAIDED ON PERFORATED STEEL PLATING IN 3RD CLASS ACC. TO LEAD COVERED ARMOUR AND BRAIDED IN ENGINE ROOM + FO'SLE

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, 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 —

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 BRASS

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 DIESEL DRIVEN DYNAMO AND SWITCHBOARD ON 'C' DECK AFT

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 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 —

where are the controlling switches situated —

Searchlight Lamps, No. of 1, whether fixed or portable PORTABLE, are their fittings as per Rule YES

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 —

DESCRIPTION OF GENERATOR	No. of	Kilowatts	Volts	Amperes	R.P.M.	DRIVEN BY	WHERE DRIVEN BY AN INTERNAL COMBUSTION ENGINE.	
							Fuel Used.	Flash Point of Fuel.
MAIN	2	550	220	2450	191	BROWN SWAZER DIESEL ENGINE	CALIFORNIAN	
AUXILIARY	2	150	220	668	336	WEIR " " "	DIESEL FUEL	190°F (CLOSED)
EMERGENCY	1	36	220	160	368	" " " "	OIL	
ROTARY TRANSFORMER								

Ref. No.	DESCRIPTION	No. of Conductors	Effective Area of each Conductor Sq. Ins.	COMPOSITION OF STRAND.		Total Maximum Current Amperes	Approximate Length (Lead and Return) Feet.	Insulated with	HOW PROTECTED.
				No.	Diameter				
1-2	MAIN GENERATOR	6	.7435	91	.103	2450	100	RUBBER	LEAD BRAIDED
	EQUALISER CONNECTIONS	3	.7435	91	.103		50	"	"
3-4	AUXILIARY GENERATOR	2	.7435	91	.103	668	220	"	"
E	EMERGENCY GENERATOR	1	.1964	37	.083	160	48	"	"
	ROTARY TRANSFORMER								
	AUXILIARY SWITCHBOARDS								
L	ENGINE ROOM	1	.1964	37	.083	164	240	RUBBER	LEAD BRAIDED
N	BOILER ROOM	1	.4064	61	.093	279	240	"	"
ABD.H	WINCH BOARD FOR ACCUMULATOR	2	.4995	61	.103	866	1654	CAMBRIC	LEAD BRAIDED + ARM.
GJK	D° D° AFT	2	.3024	37	.103	590	1440	"	"
F	REFRIG. BOARD	3	.8459	127	.093	1428	210	RUBBER	LEAD BRAIDED
M1	LIGHTING FOR	1	.3024	37	.103	222	300	"	"
M2	" MID	1	.4064	61	.093	287	300	"	"
M3	" AFT	1	.4064	61	.093	283	600	"	"
M4	" ENG. RM	1	.06	19	.064	72	100	"	LEAD ARM + BRAIDED
M5	POWER FOR	1	.2465	37	.093	180	320	"	LEAD BRAIDED
M6	" MID	1	.2465	37	.093	214	250	"	"
M7	" AFT	1	.2465	37	.093	140	360	"	"
M8	BOAT WINCHES	1	.2465	37	.093	200	250	"	"
M9	ENG. RM AUXILIARIES	1	.1009	19	.083	78	60	"	LEAD ARM + BRAIDED
	WIRELESS	1	.01046	7	.044	30	760	"	LEAD BRAIDED
	SEARCHLIGHT	1	.00194	3	.029	60	1000	"	LEAD ARM + BRAIDED
	MASTHEAD LIGHT	1	.00194	3	.029	27	800	"	LEAD BRAIDED
	SIDE LIGHTS	1	.00194	3	.029	27	80	"	"
	COMPASS LIGHTS	1	.00194	3	.029	27	40	"	"
E1	EMERGENCY FOR	1	.0396	19	.052	284	600	"	"
	CARGO LIGHTS	1	.00194	3	.029	27	40	"	LEAD ARM + BRAIDED
E2	EMERGENCY FOR	1	.0396	19	.052	48.7	360	"	LEAD COVERED
	WIRELESS FIRE	1	.00455	7	.039	18	100	"	VULCANISED

Ref. No.	DESCRIPTION	No. of Motors	Effective Area of each Conductor Sq. Ins.	COMPOSITION OF STRAND.		Total Maximum Current Amperes	Approximate Length (Lead and Return) Feet.	Insulated with	HOW PROTECTED.
				No.	Diameter				
	WIRE								
	BALLAST PUMP	1	.1009	19	.083	96.5	160	RUBBER	LEAD ARM + BRAIDED
	" BILGE PUMP	1	.1009	19	.083	96.5	160	"	"
	MAIN BILGE PUMPS	1	.1964	37	.103	160	180	"	"
	GENERAL SERVICE PUMP	1	.1009	19	.083	96.5	80	"	"
	EMERGENCY BILGE PUMP	1	.06	19	.064	64	800	"	LEAD BRAIDED
	SANITARY PUMP	2	.1009	19	.083	100	150	"	LEAD ARM + BRAIDED
	CROSSHEAD OIL PUMP	1	.0284	19	.044	48	110	"	"
	COOLING WATER PUMPS	3	.01046	7	.044	28	160	"	"
	AIR COMPRESSORS	2	.10376	127	.103	600	300	"	"
	OIL FUEL SEPARATORS	2	.00455	7	.029	16	100	"	"
	ENGINE TURNING GEAR	2	.0396	19	.052	60	150	"	"
	LUBRICATING OIL SEPARATOR	1	.00455	7	.029	16	50	"	"
	LUBRICATING OIL PUMPS	2	.1009	19	.083	100	130	"	"
	" H-ROCK	1	.00455	7	.029	38	180	"	"
	OIL FUEL TRANSFER PUMP	2	.00217	7	.029	18	180	"	"
	WINDLASS	1	.4964	61	.093	400	180	"	"
	WINCHES, FORWARD	12	.1478	37	.072	124	240	"	"
	WINCHES, AFT	6	.1478	37	.072	124	200	"	"
	STEERING GEAR	1	.00701	7	.036	22	40	"	"
	BOAT WINCHES	2	.1964	37	.103	200	660	"	LEAD BRAIDED
	WORKSHOP MOTOR	30	.00455	7	.029	16	120	"	LEAD ARM + BRAIDED
	VENTILATING FANS	18	.00455	7	.029	16	20	"	LEAD BRAIDED
	FANS ENGINE RM	4	.00455	7	.029	18	220	"	"
	" REFRIGERATING	6	.0284	19	.044	48	500	"	"
	COR. COMPRESSORS	3	.7435	91	.103	440	100	"	LEAD ARM + BRAIDED
	" BRINE PUMPS	5	.0396	19	.052	66	140	"	"
	" WATER PUMPS	2	.02217	7	.064	38	40	"	"
	JACKET & PISTON COOLING	3	.00455	7	.029	212	90	"	"
	PISTON DISCHARGE	1	.0396	19	.052	64	100	"	"
	CAPSTANS	2	.1964	37	.103	200	160	"	LEAD BRAIDED
	LIFTS	2	.03214	7	.064	28	120	"	LEAD ARM + BRAIDED

All Conductors are of annealed copper conforming to British Standard Specification No. 7.

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

The foregoing is a correct description.

John Brown & Company, Limited.

Electrical Engineers.

Date 11.11.29.

John Brown & Company, Limited.

COMPASSES.

Distance between electric generators or motors and standard compass 40 FEET FROM VENT. FAN

Distance between electric generators or motors and steering compass 40 " " " "

The nearest cables to the compasses are as follows:—

A cable carrying 60 Amperes 8 feet from standard compass 8 feet from steering compass.

A cable carrying 31.6 Amperes 12 feet from standard compass 7 feet from steering compass.

A cable carrying 1 Amperes 1 feet from standard compass 1 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 — course in the case of the standard compass, and NIL degrees on — course in the case of the steering compass.

John Brown & Company, Limited.

John Brown & Company, Limited.

Builder's Signature.

Date 11.11.29.

Is this installation a duplicate of a previous case No. If so, state name of vessel M.V. Rangitā

General Remarks (State quality of workmanship, opinions as to class, etc.) This installation has

been fitted on board under special survey
tested under full working conditions and
found satisfactory.

The materials and workmanship were found
to be good and sound.

Elec Light

BA

13/11/29

Total Capacity of Generators 1436 Kilowatts.

The amount of Fee ... £ 67.8.0 : When applied for, 9 NOV 1929

Travelling Expenses (if any) £ : : When received, 16.11.29

Committee's Minute GLASGOW 12 NOV 1929

Assigned Elec Light

J. S. Rankin
Surveyor to Lloyd's Register of Shipping.

FRI. 6 DEC 1929



© 2019
Lloyd's Register
Foundation