

REPORT ON ELECTRICAL EQUIPMENT.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

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No. in Survey held at Port Glasgow & Glasgow. Date, First Survey 6. 9. 37 Last Survey 20. 10. 1937
Reg. Book. (Number of Visits 10)

27002 on the s.s. "IRON KNIGHT."

Tons { Gross 4811.71
Net 2737.30

Built at Port Glasgow. By whom built Libgows Ltd Yard No. 902 When built 1937

Owners Broken Hill Proprietary Co. Ltd. Port belonging to Melbourne.

Electric Light Installation fitted by W. Muir Goodfellows Co. Ltd. Contract No. 902 When fitted 1937

Is the Vessel fitted for carrying Petroleum in bulk ho.

System of Distribution Two wire ✓
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 ho. ✓, is an adjustable regulating resistance fitted in series with each shunt field —

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 In 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 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 In engine room near generators. ✓

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 micaite or other non-hygroscopic insulating material, and the slab similarly insulated from its framework Sirdanyo ✓, 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 ho. ✓ are all screws and nuts securing connections effectively locked Yes ✓ are any fuses fitted on the live side of switches ho. ✓ Main Switchgear, description of switchgear for each generator and each outgoing circuit, and arrangement of equalizer switches

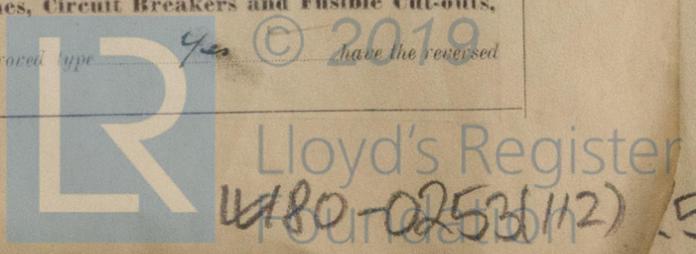
D.P. circuit breakers with 1/2 trips for each generator. D.P. c/o switch & D.P. fuses for each outgoing circuit. ✓

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 2 ✓ ammeters 2 ✓

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 Earth Lamps ✓

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 ✓



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 - Twin 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 **Fall of Pressure,** state maximum between bus bars and any point of the installation under maximum load 6.2 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 in machinery spaces, galleys, lavatories, bathrooms and lavatories lead covered or run in conduit Yes

Support and Protection of Cables, state how the cables are supported and protected Mains L.C.A. on perforated steel trays through tween deck spaces. Machinery spaces L.C.A. clipped. Accommodation L.C. clipped.

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 None

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 Announcing - lead sheathing of cables bonded together.

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 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 Yes in tween deck spaces. Fittings are of heavy metal with strong glasses. (Wigan Fittings)

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

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 Yes, whether fixed or portable Yes, are their fittings as per Rule Yes

Are 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 when possible, 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 and 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.	Amps.	Revs. per Min.		Fuel Used.	Flash Point of Fuel.
MAIN	1	90	220	404	500	Steam Engine		
AUXILIARY	1	50	220	227	550	do do		
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.	Rate.			
MAIN GENERATOR	2	.30	37	.072	404	4444	60	Varn. Cambric	L.C.A
EQUALISER CONNECTIONS									
AUXILIARY GENERATOR	1	.20	37	.083	227	266	60	"	"
EMERGENCY GENERATOR									
ROTARY TRANSFORMER MOTOR GENERATOR									
ENGINE ROOM SECTION BOX	1	.0225	7	.064	31	44	40	Rubber	L.C.A.
BOILER ROOM D.B.	1	.007	7	.036	18	24	50	"	"
AUXILIARY SWITCHBOARDS									
PANTRY GEAR SALAMANDER	1	.007	7	.036	22.8	24	120	"	"
" STEAMER	1	.007	7	.036	13.7	24	120	"	"
" HOT PRESS.	1	.0145	7	.052	16.0	37	500	"	"
WELDING PLANT. (WIRING)	1	.04	19	.052	34	64	360	"	"
ACCOMMODATION ART. S.B.	1	.007	7	.036	14.1	24	80	"	"
NAVIGATION D.B.	1	.007	7	.036	3	24	600	"	"
MIDSHIP ACCOMMODATION S.B.	1	.007	7	.036	15	24	500	"	"
MOSQUITO ACCOM. GALLEY FLOODLIGHT	1	.0225	7	.064	24.5	44	500	"	"
HOLD LIGHTS D.B.	1	.0225	7	.064	27	46	500	"	"
WIRELESS	1	.007	7	.036	15	24	600	"	"
SEARCHLIGHT									
MASTHEAD LIGHT	1	.002	3	.029	.18	7.8	280	"	L.C.A + L.C.B.
SIDE LIGHTS	1	.002	3	.029	.18	7.8	100	"	L.C.B
COMPASS LIGHTS	1	.002	3	.029	.10	7.8	25	"	L.C.B
POOP LIGHTS									
CARGO LIGHTS									
ARC LAMPS									
HEADERS GALLEY RANGE	1	.20	37	.083	228	266	120	Varn Cambric	L.C.
SHORE CONNECTION	1	.15	37	.072	200	222	200	"	L.C.

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.	Rate.			
BALLAST PUMP										
MAIN BILGE LINE PUMPS										
GENERAL SERVICE PUMP										
EMERGENCY BILGE PUMP										
SANITARY PUMP										
CIRC. SEA WATER PUMPS										
CIRC. FRESH WATER PUMPS										
AIR COMPRESSOR										
FRESH WATER PUMP										
ENGINE TURNING GEAR										
ENGINE REVERSING GEAR										
LUBRICATING OIL PUMPS										
OIL FUEL TRANSFER PUMP										
WINDLASS										
WINCHES, FORWARD										
WINCHES, AFT										
STEERING GEAR-										
(a) MOTOR GENERATOR	2	1	.06	19	.064	81	83	200	Rubber	L.C.A.
(b) MAIN MOTOR										
WORKSHOP MOTORS D.B.		1	.0225	7	.064	28	46	120	"	"
VENTILATING FANS D.B.		1	.0045	7	.029	10	18.2	30	"	"
LATHE MOTOR	1	1	.003	3	.036	9	12	20	"	"
DRILLING MACHINE MOTOR	1	1	.003	3	.036	7	12	20	"	"
GRINDER MOTOR	1	1	.0045	7	.029	12	18.2	20	"	"
THERMOTANK EXHAUST FAN	1	1	.0045	7	.029	11	18.2	120	"	"
DOMESTIC GEAR, MAIN D.B.	1	1	.0145	7	.052	21	37	500	"	"

