

REPORT ON ELECTRIC FITTINGS.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

Date of writing Report 23rd Feb 1928 When handed in at Local Office 10 Port of Copenhagen Received at London Office 4 OCT 1928

No. in Survey held at Copenhagen Date, First Survey 5th July Last Survey 1st September 1928
Reg. Book. 92804 on the Steel Screw Motor Vessel "YANDRA" (Number of Visits 18)

Built at Copenhagen By whom built Akt. Burmeister & Wain's Maskin og Skibsbyggeri Yard No. 555 When built 1928
Owners The Adelaide Steamship Co. Ltd. Port belonging to Port Adelaide

Electric Light Installation fitted by Akt. Burmeister & Wain's Maskin og Skibsbyggeri Contract No. 555 When fitted 1928

System of Distribution Two conductors, Insulated system.

Pressure of supply for Lighting 110 volts, Heating 220 volts, Power 220 volts.

Direct or Alternating Current, Lighting Direct current. Power Direct current.

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. 0 per cent., 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 In the machinery space. 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 Not situated near unprotected woodwork or other combustible material.

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 At the forward end of the 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 Placed in same compartment.

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 Not situated near unprotected woodwork or other combustible material.

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 micanite 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 For each generator:

a three pole circuit breaker with overload and reversed current trip.

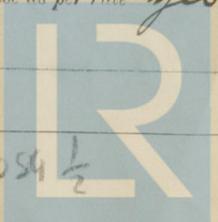
For each outgoing circuit: a double pole switch and a double pole fuse.

Instruments on main switchboard 5 ammeters 4 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 One Voltmeter for 220 and one for 110 volts pressure is provided with Ohm scale, and the switchboard is provided with 2 sets of earth testing lamps.

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.



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

Fall of Pressure, state maximum between bus bars and any point of the installation under maximum load *abt. 5 Volt.*

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 *No paper insulated cables used*

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 *The cables are supported by screwed clips as per Rules, and where necessary protected by sheet iron casings or iron tubes. - Armoured cables used.*

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 *No joints in cables.*

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 *No earthing connections.*

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

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 *None.*

Fittings, are all fittings on weather decks, in aloft holds 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 *No.*

how are the cables led

where are the controlling switches situated

Searchlight Lamps, No. of *Will be fitted on arrival at the home port.* 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*

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 pipework or other combustible material, are the motors of the totally enclosed, pipe ventilated, forced draught, drip or flame proof type *Not situated near unprotected woodwork or other combustible material* 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 *None.*

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.		Fuel Used.	Flash Point of Fuel.
MAIN	3	300 KW 1.1 at 33 "	220	300 150	400	Auxiliary Diesel oil engines.	Crude oil about 150° F.
AUXILIARY							
EMERGENCY							
ROTARY TRANSFORMER	1	8	220/110	73	1700	Electric motor.	

LIGHTING AND HEATING CONDUCTORS.

Ref. No.	DESCRIPTION.	No. of Conductors.	Effective Area of each Conductor Sq. mm.	COMPOSITION OF STRAND.		Total Maximum Current Amperes.	Approximate Length. (Lead and Return.) Feet.	Insulated with	HOW PROTECTED.
				No.	Diameter in mm.				
	MAIN GENERATOR..	33	95	19	2.52	150	2 x 27	Vulcanized rubber	Lead covered and braided, and steel wire armoured.
	EQUALISER CONNECTIONS	1	70	19	2.16		27	" "	" " " " "
	AUXILIARY GENERATOR								
	EMERGENCY GENERATOR								
	ROTARY TRANSFORMER	1	35	19	1.53	73	40	" "	" " " "
	AUXILIARY SWITCHBOARDS								
	ENGINE ROOM	1	2.5	7	0.67	8	5	" "	" " " "
	BOILER ROOM								
	ACCOMMODATION	1	10	7	1.35	30	44	" "	" " " "
	NAVIGATION	1	2.5	7	0.87	4	45	" "	" " " "
	ACCOMMODATION AFT.	1	1.5	1	1.38	5	116	" "	" " " "
	WIRELESS								
	SEARCHLIGHT	1	16	7	1.70	40	50	" "	" " " "
	MASTHEAD LIGHT	1	1.5	1	1.38	0.55	76	" "	" " " "
	SIDE LIGHTS EACH SIDE	1	1.5	1	1.38	0.55	15	" "	" " " "
	COMPASS LIGHTS	1	1.5	1	1.38	0.14	12	" "	" " " "
	POOP LIGHTS	1	1.5	1	1.38	0.25	130	" "	" " " "
	CARGO LIGHTS	1	1.5	1	1.38	1.4	24	" "	Exposed & braided.
	ARC LAMPS								
	HEATERS	1	16	7	1.70	37	44	" "	Lead covered and braided, and steel wire armoured.

MOTOR CONDUCTORS.

Ref. No.	DESCRIPTION.	No. of Motors.	Effective Area of each Conductor Sq. mm.	COMPOSITION OF STRAND.		Total Maximum Current Amperes.	Approximate Length. (Lead and Return.) Feet.	Insulated with	HOW PROTECTED.
				No.	Diameter in mm.				
	BALLAST PUMP	1	10	7	1.35	36	54	Vulcanized rubber	Lead covered and braided, and steel wire armoured.
	MAIN BILGE LINE PUMPS								
	GENERAL SERVICE PUMP								
	EMERGENCY BILGE PUMP								
	BILGE AND SANITARY PUMP	1	10	7	1.35	36	54	" "	" " " "
	CIRC. SEA WATER PUMPS								
	CIRC. FRESH WATER PUMPS								
	AIR COMPRESSOR								
	FRESH WATER PUMP	1	2.5	7	0.67	7	10	" "	" " " "
	ENGINE TURNING GEAR	1	2.5	7	0.67	8	12	" "	" " " "
	ENGINE REVERSING GEAR								
	COOLING WATER AND LUBRICATING OIL PUMPS	1	25	7	2.13	58	56	" "	" " " "
	OIL FUEL TRANSFER PUMP	1	10	7	1.35	36	56	" "	" " " "
	WINDLASS AND 2 WINCHES	3	150	37	2.27	140	90	" "	" " " "
	2-WINCHES, FORWARD	2	95	19	2.52	120	90	" "	" " " "
	2-WINCHES, AFT & CAPSTAN	3	95	19	2.52	120	56	" "	" " " "
	STEERING GEAR								
	(a) MOTOR GENERATOR								
	(b) MAIN MOTOR	1	6	7	1.05	22	130	" "	" " " "
	WORKSHOP MOTOR	1	1.5	1	1.38	4	10	" "	" " " "
	" - " - DRILLING	1	1.5	1	1.38	4	10	" "	" " " "
	VENTILATING FAN MACHINE								
	CO2 COMPRESSOR	1	16	7	1.70	38.5	12	" "	" " " "
	BRINE PUMPS	2	2.5	7	0.67	6	10	" "	" " " "
	COOLING WATER PUMP	1	2.5	7	0.67	6	10	" "	" " " "
	FEEDER FOR WORKSHOP MOTORS	6	16	7	1.70	42	36	" "	" " " "
	" - " REFRIGERATING	4	25	7	2.13	50	70	" "	" " " "
	OIL PURIFIERS	2	2.5	7	0.67	10	12	" "	" " " "

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.

AKTIESELSKABET
 BURMEISTER & WAIN
 MASKIN- OG SKIFTEVÆRKT

Electrical Engineers. Date _____

COMPASSES.

Distance between electric generators or motors and standard compass about 14 Metres.
 Distance between electric generators or motors and steering compass " 10 "
 The nearest cables to the compasses are as follows:—
 A cable carrying 4 Amperes 4 Metres feet from standard compass 3 Metres feet from steering compass.
 A cable carrying 0.14 Amperes to lamp in feet from standard compass and in feet from steering compass.
 A cable carrying ✓ Amperes ✓ feet from standard compass ✓ 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 0 degrees on all course in the case of the standard compass, and 0 degrees on all course in the case of the steering compass.

AKTIESELSKABET
 BURMEISTER & WAIN
 MASKIN- OG SKIFTEVÆRKT

Builder's Signature. Date _____

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 whole electric lighting, heating and power installation as above described has been fitted in accordance with the requirements of the Rules, the approved plan, and the Secretary's letter E. dated the 2nd and 11th April 1928.
 The material used in the installation and the workmanship are of good description in every respect.—
 The whole electric installation has been tested under full power working condition and found to work satisfactorily.*

Recommend the vessel to have notation in the Register Book of "Electric light."

It is submitted that
 this vessel is eligible for
 THE RECORD. Elec light
 D.M. 9/10/28.

Total Capacity of Generators 165 Kilowatts.

The amount of Fee ... £ 632.45 { When applied for, 29.9 1928.
 Travelling Expenses (if any) £ : : { When received, 6.11 1928.

A. J. Duboché
 Surveyor to Lloyd's Register of Shipping.

Committee's Minute FRI. 19 OCT 1928

Assigned Elec light

1m.127—Transfer. (The Receipts are requested not to write on or below the space for Committee's Minute.)