

# REPORT ON ELECTRIC FITTINGS.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

Received at London Office

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No. in Survey held at GLASSGOW. Date, First Survey 30<sup>th</sup> Aug Last Survey 24<sup>th</sup> Decr 1926  
 Reg. Book. 89662 on the M. V. "KOOLINDA" (Number of Visits... 13)

Built at GOYAN By whom built HARLAND WOLFF LTD Yard No. 728 When built 1926.

Owners THE GOVERNMENT OF WESTERN AUSTRALIA Port belonging to FREMANTLE

Electric Light Installation fitted by MESSRS HARLAND & WOLFF LTD Contract No. 728 When fitted 1926.

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

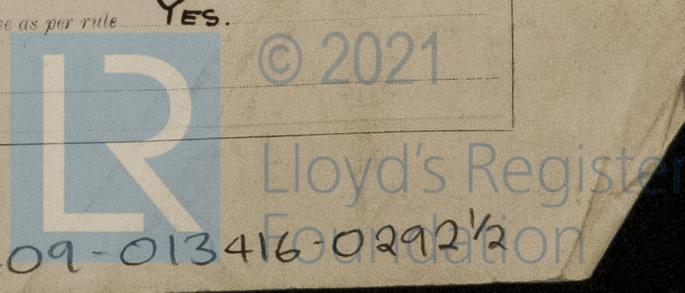
If alternating current system, state frequency of periods per second —  
 Has the Automatic Governor been tested and found efficient when the whole load is suddenly thrown on or off YES ✓  
 Generators, do they comply with the requirements regarding overload YES ✓, are they compound wound YES ✓  
 are 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 and clearly marked YES, are they so spaced or shielded that they cannot be accidentally earthed, or short circuited YES Are the lubricating arrangements of the generators as per Rule YES

Position of Generators 2 ON PORT SIDE OF MAIN MOTOR ROOM, 1 ON STARBOARD SIDE OF MAIN MOTOR 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 axis 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 ON PLATFORM AFT END OF MAIN MOTOR ROOM OVERTHRUST BLOCKS  
 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, incombustible 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 connected to one pole insulated from the slab with mica or micanite and the slab similarly insulated from its framework YES, and is the frame effectively earthed YES Are the following fittings as per Rule, viz. :— 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 D.P. CIRCUIT BREAKER INTERLOCKED WITH S.P. EQUALISING SWITCH FOR EACH GENERATOR; DOUBLE POLE CIRCUIT BREAKERS FOR EACH SIDE OF BOTH RING MAINS & D.P. SWITCH & FUSES FOR OTHER CIRCUITS  
 Instruments on main switchboard 4 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 TWO LAMPS & TWO LINKED SINGLE POLE SWITCHES ACROSS MAINS. MID POINT OF LAMPS EARTHED.  
 Switches, Circuit Breakers and Fusible Cut-outs, do these comply with the requirements of the Rules YES  
 Section and Distribution Boards, is the construction, protection, insulation, material, and position of these as per rule YES.



08534  
 Insulation of Cables, state type of cables, single or twin **BOTH** are the cables insulated and protected as per Tables III or IV of the Rules **YES**

Fail of Pressure, state maximum between bus bars and any point of the installation under maximum load **3.2 Volts**

Cable Sockets and other connections, are the ends of all cables having a sectional area of 0.007 square inch and above provided with soldering socket **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 **NONE 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 **MAINS RUN ON PERFORATED PLATING & PROTECTED BY S.I. COVER, WHERE EXPOSED TO DAMAGE. BRANCH WIRING CLIPPED DIRECT TO STEEL BULKHEADS**

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 VI **YES**

Refrigerated Chambers, if lights are fitted, are the cables and fittings in accordance with the special requirements **—**

Joints in Cables, state if any, and how made, insulated, and protected **IN A SPECIAL JOINT BOX**

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 Positions, 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 **BRIDGE DECK, PORT SIDE. D.P. CHANGE OVER SWITCH WITH FUSES CHANGING EMERGENCY SWITCHBOARD OVER FROM EMERGENCY DYNAMO TO FOR<sup>2</sup> RING MAIN, EMERGENCY DYNAMO DRIVEN BY PARAFFIN 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**, are separate screens provided for the use of oil and electric side lights **YES**

are separate oil lanterns provided for the mast head lights and side lights **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, GUARDED WITH CAST BRASS GUARDS**

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, ADMIRALTY**

PATTERN MAGAZINE FITTING **FITTED IN BONDED STORE**, how are the cables led **—**

in **G.I. CONDUIT**

where are the controlling switches situated **AT DOOR**

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

Arc 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 axis of rotation fore and aft **YES EXCEPT 4 FANS**

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 as per Rule **YES**

Lightning Conductors, where lightning conductors are required, are these fitted as per Rule **—**

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	110	220	490	200	DIESEL ENGINE	BRIT. MEX.	CLOSED 176° F OPEN 190° F
AUXILIARY	—	—	—	—	—	—	—	—
EMERGENCY	1	15	220	68	1000	PARAFFIN ENGINE	PARAFFIN PETROL	—
ROTARY TRANSFORMER	1	45	440	80	1160	LANCASHIRE DYNAMO & MOTOR	3 PHASE AC.	FOR SHORE SUPPLY

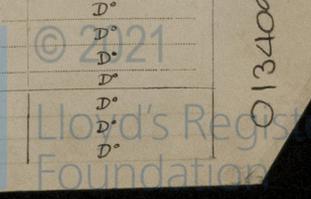
LIGHTING AND HEATING CONDUCTORS.

Ref. No.	DESCRIPTION.	No. of Conductors.	Effective Area of each Conductor. Sq. Ins.	COMPOSITION OF STRAND.		Total Maximum Current. Ampères.	Approximate Length. (Lead and Return.) Feet.	Insulated with	HOW PROTECTED.
				No.	Diameter.				
	MAIN GENERATOR...	2 POSITIVE 2 NEGATIVE 1 EQUALIZER	.3 ✓	37	.1103	490	220 (±)	RUBBER	LEAD CASED
	AUXILIARY GENERATOR	—	—	—	—	—	—	—	—
	EMERGENCY GENERATOR	1 PER POLE	.06 ✓	19	.064	68	40	D°	D°
	ROTARY TRANSFORMER...	1 PER POLE	.25 ✓	37	.093	205	72	D°	D°
	AUXILIARY SWITCHBOARDS	D°	.25 ✓	37	.093	205	180	D°	D° & LSAB
	ENGINE ROOM	D°	.007 ✓	7	.036	6	40	D°	LEAD CASED
	BOILER ROOM	—	—	—	—	—	—	—	—
	WIRELESS	1 PER POLE	.007 ✓	7	.036	15	130	RUBBER	LEAD CASED
	SEARCHLIGHT	—	—	—	—	—	—	—	—
	MASTHEAD LIGHT...	1 PER POLE	.003 ✓	3	.036	45	490	D°	LEAD CASED & LSAB
	SIDE LIGHTS	D°	.003 ✓	3	.036	45	92	D°	LEAD CASED
	COMPASS LIGHTS	D°	.002 ✓	3	.029	2	40	D°	D°
	POOP LIGHTS	D°	.002 ✓	3	.029	8	150	D°	D°
	CARGO LIGHTS	D°	.003 ✓	3	.036	20	100	D°	D°
	ARC LAMPS	—	—	—	—	—	—	—	—
	HEATERS	1 PER POLE	.002 ✓	3	.029	20	150	D°	D°

MOTOR CONDUCTORS.

Ref. No.	DESCRIPTION.	No. of Motors.	Effective Area of each Conductor. Sq. Ins.	COMPOSITION OF STRAND.		Total Maximum Current. Ampères.	Approximate Length. (Lead and Return.) Feet.	Insulated with	HOW PROTECTED.
				No.	Diameter.				
	BALLAST PUMP	1	.06 ✓	19	.064	64	16	RUBBER	LEAD CASED
	MAIN BILGE LINE PUMPS	1	.007 ✓	4	.036	25.5	24	D°	D°
	GENERAL SERVICE PUMP	1	.06 ✓	19	.064	80	48	D°	D°
	EMERGENCY BILGE PUMP	1	.0145 ✓	4	.052	8	320	D°	D°
	SANITARY PUMP	1	.075 ✓	19	.072	80	44	D°	D°
	CIRC. SEA WATER PUMPS	1	.075 ✓	19	.072	80	52	D°	D°
	CIRC. FRESH WATER PUMPS	2	.007 ✓	7	.036	13	24	D°	D°
	AIR COMPRESSOR	1	.0145 ✓	7	.052	32	260	D°	D°
	FRESH WATER PUMP	—	—	—	—	—	—	—	—
	ENGINE TURNING GEAR	2	.0145 ✓	4	.052	32	64	D°	D°
	ENGINE REVERSING GEAR	—	—	—	—	—	—	—	—
	LUBRICATING OIL PUMPS	2	.075 ✓	19	.072	96	80	D°	D°
	OIL FUEL TRANSFER PUMP	1	.007 ✓	4	.036	14	44	D°	D°
	WINDLASS	1	.15 ✓	37	.072	156	180	D°	L.S.A.B.
	WINCHES, FORWARD	4	2x .25	2x 37	.093	390	480	D°	D°
	WINCHES, AFT	5	2x .15	2x 37	.072	560	200	D°	LEAD CASED
	STEERING GEAR	1	.075 ✓	19	.072	58	352	D°	D°
	WORKSHOP MOTOR	—	—	—	—	—	—	—	—
	VENTILATING FANS	5	.007 ✓	7	.036	13 1/2	80	D°	D°
	D° E.R.	2	.007 ✓	4	.036	13	220	D°	D°
	D° CATTLE	4	.007 ✓	4	.036	20	80	D°	D°
	D° REFRIG.	1	.007 ✓	4	.036	13 1/4	40	D°	D°
	LATHE	1	.003 ✓	3	.036	7	30	D°	D°
	DRILL	1	.003 ✓	3	.036	9	40	D°	D°
	OIL PURIFIER	1	.003 ✓	3	.036	9.5	60	D°	D°
	GRINDER	1	.003 ✓	3	.036	2	22	D°	D°
	HOT SALT WATER	1	.003 ✓	3	.036	10	146	D°	D°
	NH3 COMPRESSORS	2	.04 ✓	19	.052	56	52	D°	D°
	BRINE PUMPS	3	.007 ✓	7	.036	11	52	D°	D°
	WATER PUMPS	2	.007 ✓	7	.036	11	32	D°	D°
	W.T. DOOR	1	.01 ✓	7	.044	28	520	D°	D°
	GALLEY BLOWERS	2	.003 ✓	3	.036	2 1/2	80	D°	D°
	BOAT HOIST	1	.01 ✓	7	.044	29	160	D°	D°

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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.

HARLAND AND WOLFF LIMITED.  
*John Dickerson*  
 Managing Director

Electrical Engineers.

Date 31st Dec 1926

COMPASSES.

Distance between electric generators or motors and standard compass 87 ft  
 Distance between electric generators or motors and steering compass 82 ft

The nearest cables to the compasses are as follows:—

A cable carrying 5/28 Ampères 12 feet from standard compass 10 feet from steering compass.  
 A cable carrying 7 Ampères 12 feet from standard compass 10 feet from steering compass.  
 A cable carrying .5 Ampères 8 feet from standard compass 16 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 THE course in the case of the standard compass, and NIL degrees on ALL THE course in the case of the steering compass.

For HARLAND AND WOLFF LIMITED.

*John Dickerson*, Builder's Signature.  
 Managing Director.

Date 31st Dec 1926

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.) This installation has been fitted on board under special survey. Tested under full working conditions and found satisfactory. The workmanship was found to be good and sound.

It is submitted that this vessel is eligible for THE RECORD. Elec. light.

*J.W.*  
 17/1/27

A.L.  
 31/1/27

Total Capacity of Generators 345 Kilowatts

The amount of Fee ... £ 40.2.6 : 29.12.26 When applied for.

Travelling Expenses (if any) £ : : 19/1/27 When received.

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

Committee's Minute GLASGOW 11 JAN 1927

Assigned Elec. Light.

1m, 921—T. transfer. (The Surveyors are requested not to write on or below the space for Committee's Minute.)



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