

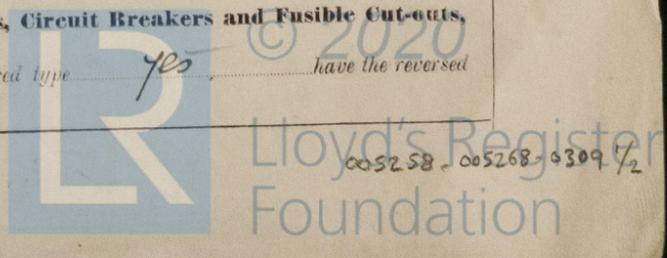
REPORT ON ELECTRICAL EQUIPMENT.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

Received at London Office **MAY 18 1939**

Date of writing Report 18 When handed in at Local Office 11: 4: 1939 Port of Glasgow
 No. in Survey held at Dumbarton Date, First Survey 13: 10: 38 Last Survey 20: 3: 1939
 Reg. Book. 89828 on the "ROYAL DAFFODIL" (Number of Visits 10)
 Built at Dumbarton By whom built Wm Deuny & Bros Ltd Yard No. 1330 When built 1939
 Owners General Steam Nav. Co Ltd. Port belonging to London
 Electric Light Installation fitted by Wm Deuny & Bros Ltd Contract No. 1330 When fitted 1939
 Is the Vessel fitted for carrying Petroleum in bulk no

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 yes, is an adjustable regulating resistance fitted in series with each shunt field yes Have certificates of test results for machines under 100 kw. been submitted and approved yes Have machines over 100 kw. been inspected by the Surveyors during manufacture and testing 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 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 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 micanite or other non-hygroscopic insulating material, and the slab similarly insulated from its framework Sindampo, 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 each generator controlled by T.P. Circuit breakers with O.L. and R.C. trips. Final lub. pump and Aux Air compressor controlled by S.P. overload C. Breaker on one pole and fuse on the other pole, remaining outgoing circuits controlled by D.P. switch and fuses.
 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 3 ammeters 3 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, 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. **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 —. **Fall of Pressure**, state maximum between bus bars and any point of the installation under maximum load 5.5 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 —, or waterproof insulating tape —.

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, laundries, bathrooms and lavatories lead covered or run in conduit yes.

Support and Protection of Cables, state how the cables are supported and protected Cables clipped.

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, are the cables and fittings in accordance with the special requirements —.

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 lead sheath efficiently earthed by means of clips or bonding glands.

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 in special compartment controlled from its own switchboard. generator driven by I.C. 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. **Secondary Batteries**, are they constructed and fitted as per Rule yes.

Fittings, are all fittings on weather decks, in stowholds 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 —.

how are the cables led —.

where are the controlling switches situated —.

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 —.

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 axes of rotation fore and aft yes where 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 —, if not of this type, state distance of the combustible material horizontally or vertically above the motors — and —.

have machines of over 100 BHP been inspected by the Surveyors during manufacture and testing —. **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 —, are all fuses of the fitted cartridge type —, are they of an approved type —.

If portable lamps for use in dangerous spaces are supplied, are they of a self-contained, battery-fed type approved by the Home Office —.

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	3	100	220	455	535	I.C. engine.	oil.	above 150°F.
AUXILIARY								
EMERGENCY	1	8	220	37	850	I.C. engine.	oil.	above 150°F.
ROTARY TRANSFORMER								

GENERATOR, LIGHTING AND HEATING CONDUCTORS.

DESCRIPTION.	CONDUCTORS.		COMPOSITION OF STRAND.		TOTAL MAXIMUM CURRENT AMPERES.		Approximate Length (Lead and Return) Feet.	Insulated with	HOW PROTECTED.
	No. per Pole.	Total Nominal Area per Pole Sq. Ins.	No.	Diameter.	Circuit.	Rule.			
MAIN GENERATOR	1	.75	91	.103	455	461	20	Rubber	L.C.B.
EQUALISER CONNECTIONS	1	.3	37	.103	—	240	10	"	"
AUXILIARY GENERATOR									
EMERGENCY GENERATOR	1	.0145	7	.052	37	37	30	"	L.C.
ROTARY TRANSFORMER MOTOR GENERATOR									
ENGINE ROOM	1	.003	3	.036	7	12	60	"	L.C.B.
BOILER ROOM									
AUXILIARY SWITCHBOARDS									
VENT FANS. SECT. PANEL	1	.06	19	.064	65	83	244	"	L.C.
ENG. ROOM AUX "N"	1	.04	19	.052	52	64	100	"	L.C.B.
" " " "P"	1	.04	19	.052	58	64	80	"	"
NAVIGATION BRIDGE	1	.003	3	.036	8	12	70	"	L.C.
ACCOMMODATION FOR'D S.B.	1	.0145	7	.052	30	37	110	"	L.C.
AFT S.B.	1	.0045	7	.029	15	18.2	244	"	L.C.
FOR'D OFFICER'S ENG. LGT. CREW. AFT.	1	.003	3	.036	8	12	360	"	L.C.
	1	.003	3	.036	6	12	200	"	L.C.
WIRELESS	1	.0045	7	.029	12	18.2	140	"	L.C.
SEARCHLIGHT									
MASTHEAD LIGHT	1	.002	3	.029	18	7.8	300	"	L.C.
SIDE LIGHTS	1	.002	3	.029	18	7.8	60	"	L.C.
COMPASS LIGHTS	1	.002	3	.029	1	7.8	15	"	L.C.
GRILL ROOM S.B.	1	.15	37	.072	140	152	160	"	L.C.
SALOON PANTRY S.B.	1	.25	37	.093	180	214	280	"	L.C.
GALLEY UNITS S.B.	1	.25	37	.093	190	214	160	"	L.C.
HEATERS									

MOTOR CONDUCTORS.

DESCRIPTION.	No. of Motors.	CONDUCTORS.		COMPOSITION OF STRAND.		TOTAL MAXIMUM CURRENT AMPERES.		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	1	1	.007	7	.044	31	31	140	Rubber	L.C.B.
MAIN BILGE LINE PUMPS	1	1	.007	7	.044	31	31	130	"	L.C.B.
GENERAL SERVICE PUMP	1	1	.01	7	.044	31	31	70	"	L.C.
EMERGENCY BILGE PUMP										
SANITARY PUMP										
CIRC. SEA WATER PUMPS	2	1	.06	19	.064	72.5	83	300	"	L.C.B.
CIRC. FRESH WATER PUMPS										
AIR COMPRESSOR	1	1	.25	37	.093	202	214	86	"	L.C.B.
FRESH WATER PUMP	1	1	.003	3	.036	10.5	12	170	"	L.C.B.
ENGINE TURNING GEAR	2	1	.007	7	.036	21	24	390	"	L.C.B.
ENGINE REVERSING GEAR										
LUBRICATING OIL PUMPS	2	1	.12	37	.064	122	130	500	"	L.C.B.
OIL FUEL TRANSFER PUMP	2	1	.002	3	.029	4.6	7.8	230	"	L.C.B.
WINDLASS	1	1	.06	19	.064	79	83	320	"	L.C.
WINCHES, FORWARD CAPSTAN.	1	1	.06	19	.064	79	83	440	"	L.C.
WINCHES, AFT										
STEERING GEAR										
(a) MOTOR GENERATOR	1	1	.01	7	.044	29.6	31	440	"	L.C.
(b) MAIN MOTOR										
WORKSHOP MOTOR										
VENTILATING FANS										
OIL PURIFIERS	1	1	.003	3	.036	8.5	12	60	"	L.C.B.
LUB OIL HEATERS	3	1	.0045	7	.029	16	18.2	186	"	L.C.B.
GALLEY RANGE	1	1	.3	37	.103	236	240	200	"	L.C.

All Conductors are of annealed copper conforming to British Standard Specification No. 7 (or International Electro-technical Commission Publication No. 28).

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

The foregoing is a correct description
For WILLIAM DENNY & BROTHERS Limited

W. Russell
Director.

Electrical Engineers.

Date 5-4-39

COMPASSES.

Distance between electric generators or motors and ~~standard~~ compass 30 feet

Distance between electric generators or motors and steering compass —

The nearest cables to the compasses are as follows:—

A cable carrying 1 Ampères led into feet from ~~standard~~ compass — feet from steering compass.

A cable carrying 6 Ampères 6 feet from ~~standard~~ compass — feet from steering compass.

A cable carrying Ampères 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 *nil.* degrees on *any.* course in the case of the ~~standard~~ compass, and — degrees on — course in the case of the steering compass.

For WILLIAM DENNY & BROTHERS Limited

W. Russell
Director.

Builder's Signature.

Date 5-4-39

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, etc.)
The electrical equipment of this vessel has been fitted on board under special survey, tested under full working conditions and found satisfactory. The materials and workmanship are good.

*Noted
19/5/39*

*RB
11/4/39*

Total Capacity of Generators 308 Kilowatts.

The amount of Fee ... £ 47 : 18 :

($\frac{1}{5}$ GLASGOW £ 38 : 6 : 5)
($\frac{1}{5}$ LONDON £ 9 : 11 : 7)

Travelling Expenses (if any) £ 1 - 0 - 8 :
LONDON EXP.

When applied for, from LONDON 24 MAY 1939

When received. 7. 6. 19 39 2/6.

R. I. Knochism. A. Gaffner
Surveyors to Lloyd's Register of Shipping.

Committee's Minute

GLASGOW 9 - MAY 1939

Assigned

SEE ACCOMPANYING MACHINERY REPORT



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799, 26. - Transfer. The Surveyors are requested not to write on or below the space for Committee's Minute.