

# REPORT ON ELECTRICAL EQUIPMENT.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

Received at London Office **EB-6 1939**

Date of writing Report

19 When handed in at Local Office

2/2/39 Port of **Newcastle-on-Tyne**

No. in Survey held at **Newcastle**

Date, First Survey **5 Sept 1938** Last Survey **27 Jan 1939**  
(Number of Visits **35**)

Reg. Book. Suffix **87760** on the **M.V. "Dominion Monarch"**

Tons { Gross  
Net

Built at **Wallsend**

By whom built **Swan Hunter & Co Ltd** Yard No. **1547** When built **1939**

Owners **Shaw Savill & Albion Co Ltd** Port belonging to **Southampton**

Electric Light Installation fitted by **Swan Hunter & Wigham R. Co Ltd** Contract No. **1547** When fitted **1939**

Is the Vessel fitted for carrying Petroleum in bulk **No**

System of Distribution **Double 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** ✓

they over compounded 5 per cent. **Yes** ✓, if not compound wound state distance between each generator **—**

Are more than one generator is fitted are they arranged to run in parallel **Yes** ✓, is an adjustable regulating resistance fitted in 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** ✓

Have certificates for generators under 100 kw. been supplied and approved **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 **Aux. motor room forward of 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 aux. motor room** ✓

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 **Yes** ✓, 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 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 **Triple pole C.B. for generators one pole acting as equaliser switch. Outgoing circuits fitted with D.P. C.B. or D.P. switch + fuses according to capacity of 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 **5** ammeters **2** 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 **E lamps coupled to E through switches + fuses** ✓

Switches, Circuit Breakers and Fusible Cut-outs, are the fusible cutouts of an approved type **Yes** ✓, have the reversed **—**

do these comply with the requirements of the Rules **Yes** ✓

Generator Test Sheets etc.



current protection devices been tested under working conditions yes are all fuses labelled as per rule 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 are the cables insulated and protected as per Tables IV, V, X, XI, XII or XIII of the Rules yes

If the cables are insulated otherwise than as per Rule, are they of an approved type 5-4 Von lighting, 51 for power & heating

area of 0.04 square inch and above provided with soldering sockets yes Cable Sockets, are the ends of all cables having a sectional area of 0.04 square inch and above provided with soldering sockets yes

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

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 laid under machines or floorplates yes if so, are they adequately protected yes

Are cables in machinery spaces, galleys, laundries, bathrooms and lavatories lead covered or run in conduit yes Cable H.P. sheathes & braided yes

Support and Protection of Cables, state how the cables are supported and protected Cables H.P. sheathes & braided cables run on solid steel tray plating & supported by porcelain insulators

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 corridors yes

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 made

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 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 Generator & mainboard in Emergency dynamo room

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

are they ventilated 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

where are the controlling switches situated are all switches and lampholders constructed wholly of non-ignitable, non-absorbent materials

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 whether fixed or portable 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 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 and

have machines of over 100 BHP been inspected by the Surveyors during manufacture and testing yes have certificates for all motors for essential services been supplied and approved 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 are all fuses of the filled cartridge type 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 flameproof type approved for use in dangerous spaces yes

Spare Gear, if the vessel is for open sea service have spares been supplied as per Rule yes are they suitably stored in dry situations 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	5	600	220	2727	280	Diesel Engines		
AUXILIARY								
EMERGENCY	1	100	220	454.5	600	Diesel Engine.		
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.	Circuit.	Rule.			
MAIN GENERATOR	2	2.5	5" x 1/4" Bat		2727	3348	160	Copper has suitably insulated & spaced & protected by perforated metal trunk	H. Rubber sheathes & braided
EQUALISER CONNECTIONS	1	1.25	5" x 1/4" Bat		1363	1674	40		
AUXILIARY GENERATOR									
EMERGENCY GENERATOR	1	.5	61	.103	454	486	30		
ROTARY TRANSFORMER MOTOR GENERATOR									
ENGINE ROOM									
BOILER ROOM									
AUXILIARY SWITCHBOARDS									
ACCOMMODATION									
WIRELESS	1	.022	7	.064	15	46	600	Y.I.R	H.R. Braided
SEARCHLIGHT									
MASTHEAD LIGHT	1	.002	3	.029	.2	7.8	450	50	50
SIDE LIGHTS	1	.002	3	.029	.2	7.8	80	50	50
COMPASS LIGHTS	1	.002	3	.029	.1	7.8	25	50	50
STEERAGE LIGHTS	1	.002	3	.029	.2	7.8	1100	50	50
CARGO LIGHTS									
HEATERS									

See book of "as fitted" diagrams to be forwarded as soon as complete

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.	Rule.			
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										
(b) MAIN MOTOR										
WORKSHOP MOTOR										
VENTILATING FANS										

See book of diagrams (as fitted) to be forwarded as soon as complete

The Electrical Equipment is installed in accordance with the approved plans.  
 All Insulated Conductors are guaranteed to withstand the immersion and resistance tests specified in the Rules.  
 The foregoing is a correct description.

For  
 SWAN, HUNTER, & WIGHAM RICHARDSON, LTD. Electrical Engineers.

Date 2<sup>nd</sup> July 39.

COMPASSES.

Minimum distance between electric generators or motors and standard compass 192 feet  
 Minimum distance between electric generators or motors and steering compass 188 "

The nearest cables to the compasses are as follows:—

A cable carrying .1 Ampères on the ~~foot~~ standard compass 10 feet from steering compass.  
 A cable carrying .1 Ampères 10 feet from standard compass on the ~~foot~~ steering compass.  
 A cable carrying 3 Ampères 12 feet from standard compass 6 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 course in the case of the standard compass, and nil degrees on all course in the case of the steering compass.

For  
 SWAN, HUNTER, & WIGHAM RICHARDSON, LTD.

W. T. Budgett Builder's Signature.

Date 2<sup>nd</sup> July 1939.

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 above inst<sup>n</sup> has been fitted out under special survey. The materials & workmanship were good. The insulation resistance as far as taken was satisfactory. The generators, with their control gear & the inst tested & found satisfactory. This vessel is eligible in my opinion for notation DF, ESD, GYC.

W. T. Budgett  
 7/2/39.

The Surveyors are requested not to write on or below the space for Committee's Minute

Total Capacity of Generators 3100 Kilowatts.

The amount of Fee £22 : 10 : 0

When applied for, 14 FEB 1939

W. T. Budgett  
 Surveyor to Lloyd's Register of Shipping.

Travelling Expenses (if any) £ 8 : 11 : 8

When received, 11. 2. 39 1/2

Committee's Minute TUE. 14 FEB 1939

Assigned See Nuc. No. 9714 a

