

Rpt. 13.

No. 94780

REPORT ON ELECTRICAL EQUIPMENT.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

Received at London Office
NEWCASTLE-ON-TYNE

6 MAR 1937

Date of writing Report

When handed in at Local Office 3/3/37 Port of

No. in Survey held at Newcastle

Date, First Survey 23rd Dec/36 Last Survey 27/2/1937

Reg. Book. Subh. 82257 on the M.V. "Abbeydale"

(Number of Visits.....10.....)

Tons { Gross 8299
Net 4936

Built at Newcastle By whom built Swan Hunter & Wigham Richardson^{ltd} and No. 1506 When built 1937

Owners The Admiralty Port belonging to London

Electric Light Installation fitted by Swan Hunter & Wigham Richardson^{ltd} Contract No. 1506 When fitted 1937

Is the Vessel fitted for carrying Petroleum in bulk Yes.

System of Distribution

Double wire

Pressure of supply for Lighting 110 volts, Heating — volts, Power 110 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 —

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 Engine room starboard side, 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

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 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 Triple pole C.B. on main generators. DP & DR fuses on 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 —

Instruments on main switchboard 8 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 Elamps Coupled to E through switches fuses

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**

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 or XI of the Rules **Yes**

If the cables are insulated otherwise than as per Rule, are they of an approved type **—**

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 **—** or waterproof insulating tape **—**

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 **L.C. A+B clipped to structure in engine room. L.C+B in acc[?]**

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 **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 **—**

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 **—**

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 in pump rooms**, how are the cables led **special gastight fittings in galvanized piping run outside pump room**

where are the controlling switches situated **meshek alleyway**

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 **—**, are air heaters constructed and fitted as per Rule **—**

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

Are 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**, 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 **Yes**, are all fuses of the fitted cartridge type **Yes** **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**

Joint Boxes, Section and Distribution Boards, is the

Fall of Pressure, state maximum between bus bars and

Paper Insulated and Varnished Cambric Insulated Cables,

Cable Runs, are the cables fixed as far as possible in accessible positions

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

are the cap screws of brass **—**, are the cables run in

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 **—**

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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 **—**, if not of this type, state distance of the combustible material horizontally or vertically above the motors **—** and **—**

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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.	Amperes.		Revs. per Min.	Fuel Used.
MAIN	2	30	110	273	Steam & Diesel		
AUXILIARY	1	8	110	73	Steam Engine		
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.	Circuit.	Rule.			
MAIN GENERATOR	1	.4	61	.093	273	288	70	V.I.R	L.C.A+B
EQUALISER CONNECTIONS	1	.15	34	.072	—	152	35	do	do
AUXILIARY GENERATOR	1	.06	19	.064	73	83	70	do	do
EMERGENCY GENERATOR									
ROTARY TRANSFORMER MOTOR GENERATOR									
ENGINE ROOM	1	.04	14	.052	53	64	40	do	do
BOILER ROOM									
AUXILIARY SWITCHBOARDS									
Navigation	1	.01	7	.044	10	31	480	do	do
ACCOMMODATION									
Midship & Forward	1	.06	19	.064	45	83	440	do	do
Aft acc [?]	1	.0225	7	.064	31	46	200	do	do
WIRELESS	1	.0225	7	.064	15	46	480	do	do
SEARCHLIGHT	1	.04	19	.052	60	64	880	do	do
MASTHEAD LIGHT	1	.002	3	.029	36	7.8	420	do	L.C.A+B
SIDE LIGHTS	1	.002	3	.029	1	7.8	80	do	do
COMPASS LIGHTS	1	.002	3	.029	36	7.8	440	do	do
STEERING LIGHTS	1	.002	3	.029	36	7.8	440	do	do
CARGO LIGHTS	1	.007	7	.036	3.7	24	420	do	in galvanon pipe
ARC LAMPS									
HEATERS									

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										
Oil Pumps	2	1	.0045	7	.029	16	18.2	80	V.I.R	L.C.A+B
WINCHES, AFT										
STEERING GEAR—										
(a) MOTOR GENERATOR										
(b) MAIN MOTOR										
WORKSHOP MOTOR	1	1	.01	7	.044	24	31	100	do	do
VENTILATING FANS	3	1	.0045	7	.029	10	18.2	100	do	do
" "	1	1	.01	7	.044	10	31	200	do	do
" "	1	1	.01	7	.044	10	31	200	do	do
Refrig Machine	1	1	.04	19	.052	64	64	100	do	do
P. D. Fan	1	1	.0145	7	.052	36	37	80	do	do
Crane	1	1	.01	7	.044	24	31	80	do	do
Vapour Extractor Fan	1	1	.0045	7	.029	16	18.2	100	do	do
Blowing Pump	1	1	.0045	7	.029	12	18.2	100	do	do
Filter pump	1	1	.002	3	.029	4	7.8	100	do	do

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
SWAN, HUNTER, & WIGHAM RICHARDSON, LTD.

Electrical Engineers.

Date 22nd July 1937.

COMPASSES.

Distance between electric generators or motors and standard compass 210 feet

Distance between electric generators or motors and steering compass 205 feet

The nearest cables to the compasses are as follows:—

A cable carrying 1 Ampères on the feet from standard compass 10 feet from steering compass.

A cable carrying 1 Ampères 10 feet from standard compass on the 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.

To be filled in after adjustment of Compasses W.T.B.

Has the effect of switching on and off circuits, motors and other electro-magnetic apparatus within the vicinity of the compasses been noted

The maximum deviation due to electric currents was found to be degrees on course in the case of the standard compass, and degrees on course in the case of the steering compass.

FOR SWAN, HUNTER & WIGHAM RICHARDSON, LTD.

J.H.S. Morrison

Builder's Signature.

Date 27/2/37.

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 above installation has been fitted out

under special survey. The workmanship & materials used are good. The insulation resistance is good. The dynamos, governors main board, fuses, cables & fittings were examined & tested under working conditions & found satisfactory. This vessel is eligible in my opinion for notation D.F., ESD

Noted

W.R.W.

8.3.37

Total Capacity of Generators 68 Kilowatts.

The amount of Fee ... £ 29 : 6 : When applied for, -5 MAR 1937

Travelling Expenses (if any) £ : : When received, 16.3.37

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

Committee's Minute FRI 12 MAR 1937

Assigned

See Airc J.E. 94780

750433A—Transfer. The Surveyors are requested not to write on or below the space for Committee's Minute.



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