Rpt. 13.

No. 31814

REPORT ON ELECTRICAL EQUIPMENT.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

12 MAY 1936

Received at London Office

Date of writing Report ..... 19.. When handed in at Local Office 9th May 1936 Port of SUNDERLAND.

No. in Survey held at Sunderland. Date, First Survey 31/3/36 Last Survey 28/4/ 1936.
(Number of Visits 7)

Reg. Book. Supp 39364 on the m.v. Peebles. Tons { Gross 4982 / Net 3068

Built at Sunderland. By whom built Wm Doxford & Sons Yard No. 625 When built 1936

Owners B. J. Sutherland & Co Ld. Port belonging to Newcastle.

Electric Light Installation fitted by Campbell Isherwood & Co Ld Contract No. 625. When fitted 1936.

Is the Vessel fitted for carrying Petroleum in bulk No.

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 No, *is an adjustable regulating resistance fitted in series with each shunt field* No. *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. *Are the lubricating arrangements of the generators as per Rule* 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 o 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* Engine Room Starboard side.

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* 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* D.P. switch & fuses on dynamo. S.P. COS & DP 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* 2 ✓ *ammeters* 2 ✓ *voltmeters* — *synchronising device for paralleling purposes. For compound machines is the ammeter connected on the opposite pole to equaliser connection* — **Earth Testing,** *state what means are provided at the main switchboard for indicating the state of the insulation of the system* Earth lamps coupled to earth through S.P. 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*

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current protection devices been tested under working conditions —. **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 *or* XI *of the Rules* Yes ✓

If the cables are insulated otherwise than as per Rule, are they of an approved type Yes ✓ **Fall of Pressure,** *state maximum between bus bars and any point of the installation under maximum load* 3·0 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* —

Support and Protection of Cables, *state how the cables are supported and protected* In tween decks V.I.R taped + braided cables in heavy gauge conduit. Machinery spaces &c. Acc^n L.C. cables clipped up.

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 —

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 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* None fitted ✓

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* —.

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 ✓.

, how are the cables led —

where are the controlling switches situated —

are all fittings suitably ventilated —, *are all switches and lampholders constructed wholly of non-ignitable, non-absorbent materials* —.

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 —, *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 ✓, *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* — **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* —

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 Kilowatts.	Volts.	Ampères.	Revs. per Min.	DRIVEN BY	WHERE DRIVEN BY AN INTERNAL COMBUSTION ENGINE. Fuel Used.	Flash Point of Fuel.
MAIN	2	12·5	110	114	375	Steam Engines		
AUXILIARY ...								
EMERGENCY ...								
ROTARY TRANSFORMER								

GENERATOR, LIGHTING AND HEATING CONDUCTORS.

DESCRIPTION.	CONDUCTORS. No. per Pole.	CONDUCTORS. Total Nominal Area per Pole Sq. Ins.	COMPOSITION OF STRAND. No.	COMPOSITION OF STRAND. Diameter.	TOTAL MAXIMUM CURRENT. AMPÈRES. Circuit.	TOTAL MAXIMUM CURRENT. AMPÈRES. Rule.	Approximate Length. (Lead and Return.) Feet.	Insulated with	HOW PROTECTED.
MAIN GENERATOR	1	·1009	19	·083	114	119	30	V.I.R	L.C + B.
EQUALISER CONNECTIONS ...									
AUXILIARY GENERATOR ...									
EMERGENCY GENERATOR ...									
ROTARY TRANSFORMER { MOTOR ... GENERATOR ...									
ENGINE ROOM ... ... }	1	·01046	7	·044	17·5	31	75	Do	in pipe
BOILER ROOM ... ... }									
AUXILIARY SWITCHBOARDS ...									
ACCOMMODATION midships	1	·01046	7	·044	16	31	90	Do	Do
Cargo + aft	1	·01046	7	·044	12·5	31	90	Do	Do
WIRELESS	1	·01046	7	·044	12	31	175	Do	Do
SEARCHLIGHT									
MASTHEAD LIGHT	1	·00194	3	·029	·4	7·8	400	Do	Do
SIDE LIGHTS	1	·00194	3	·029	·4	7·8	60	Do	L.C
COMPASS LIGHTS	1	·00194	3	·029	·4	7·8	30	Do	Do
~~STERN~~ PORT LIGHTS	1	·00194	3	·029	·4	7·8	500	Do	in pipe
CARGO LIGHTS	1	·0017	40	·0076	2·4	5·0	120	Do	Cab Tyre.
ARC LAMPS									
HEATERS									

MOTOR CONDUCTORS.

DESCRIPTION.	No. of Motors.	CONDUCTORS. No. Per Pole.	CONDUCTORS. Total Nominal Area per Pole Sq. Ins.	COMPOSITION OF STRAND. No.	COMPOSITION OF STRAND. Diameter.	TOTAL MAXIMUM CURRENT. AMPERES. In Circuit.	TOTAL MAXIMUM CURRENT. AMPERES. Rule.	Approximate Length. (Lead and Return.) Feet.	Insulated with	HOW PROTECTED.
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	1	1	·007	7	·036	17·5	24	75	V.I.R	in heavy gauge conduit
VENTILATING FANS Boiler	1	1	·007	7	·036	17·5	24	75	Do	Do
Refrig motor	1	1	·0045	7	·029	13·0	18·2	70	Do	Do
" pump	1	1	·007	7	·036	20·2	24	75	Do	Do
Crane	1	1	·007	7	·036	19·0	24	75	Do	Do
Sharpler	1	1	·01046	7	·044	25·5	31	100	Do	Do

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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.

CAMPBELL & ISHERWOOD, LTD. PER [illegible] Electrical Engineers. Date 6th May 1936

COMPASSES.

Distance between electric generators or motors and standard compass 70 feet.

Distance between electric generators or motors and steering compass 64 feet.

The nearest cables to the compasses are as follows :—

A cable carrying .4 Ampères on the ~~feet from~~ standard compass 6 feet from steering compass.

A cable carrying .4. Ampères 6 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

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.

WILLIAM DOXFORD & SONS, Limited,

R Boswell Managing Director. Builder's Signature. Date 8th day 1936.

Is this installation a duplicate of a previous case Yes. If so, state name of vessel M.V. Caithness

General Remarks (State quality of workmanship, opinions as to class, &c. The above installation has been fitted out under special survey. The materials used & workmanship are good. On completion the instn was tested under working conditions & found satisfactory. The insulation resistance good. This vessel is eligible in my opinion for notation D.F.

Noted
Yhm
15.5.36

Total Capacity of Generators 25 Kilowatts.

The amount of Fee ... ... £ 20 : 0 : When applied for, 11 MAY 1936 19

Travelling Expenses (if any) £ : : When received. 12-5-19 36 Paid 13/5

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

Committee's Minute TUE. 19 MAY 1936

Assigned See minute on F.E. Rpt.

2m.5.34.—Transfer. The Surveyors are requested not to write on or below the space for Committee's Minute.

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