

Rpt. 13.

SUNDERLAND.

No. 32009

REPORT ON ELECTRICAL EQUIPMENT.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

Received at London Office 23 JAN 1937

Date of writing Report

18

When handed in at Local Office

22 JAN 1937

Port of

NEWCASTLE-ON-TYNE

No. in Survey held at

Newcastle.

Date, First Survey

Nov. 20

Last Survey

11/1/ 1937

Reg. Book, Supp.

88572

on the

M.V. "HYLTON"

(Number of Visits.....)

Tons

Gross 5197

Net 3040

Built at

Sunderland.

By whom built

W. Pickering & Sons Ltd.

Yard No.

232

When built

1937

Owners

Highburn S.S. Co Ltd

Port belonging to

Newcastle

Electric Light Installation fitted by

Messrs Campbell Johnstone & Co Ltd

Contract No.

232.

When fitted

1937.

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

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

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

Main DPS + DP fuses for dynamo. SP 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

E lamps 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

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W 404 F 00038(1/2) 3(21)

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 kV

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**, are the cables sized as far as possible in accessible positions

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 **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, lavatories, bathrooms and latrines lead covered or run in conduit Run in heavy gauge conduit

Support and Protection of Cables, state how the cables are supported and protected In holds + engine room tapes + braided cables in heavy gauge conduit. LC Cables in acc + screw space

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 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 here 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 Yes are their connections made as per Rule Yes

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 Yes

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 Yes

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 how are the cables led Yes

where are the controlling switches situated Yes 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 Yes whether fixed or portable Yes are their fittings as per Rule Yes

Are Lamps, other than searchlight lamps, No. of Yes are their live parts insulated from the frame or case Yes 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 Yes and Yes

have machines of over 100 BHP been inspected by the Surveyors during manufacture and testing 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 Yes are all fuses of the fitted cartridge type Yes 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 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.	Ampères.	Revs. per Min.		Fuel Used.	Flash Point of Fuel.	
MAIN ...	1	12.5	110	114	375	Steam Engine			
AUXILIARY ...	1	7.5	110	68	1200	Diesel Engine			
EMERGENCY ...									
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	.1	19	.083	114	118	28	V.I.R.	LC + B
EQUALISER CONNECTIONS									
AUXILIARY GENERATOR ...	1	.06	19	.064	68	83	20	50	50
EMERGENCY GENERATOR									
ROTARY TRANSFORMER { MOTOR GENERATOR...									
ENGINE ROOM...	1	.007	7	.036	21	24	10	50	in heavy gauge conduit
BOILER ROOM...									
AUXILIARY SWITCHBOARDS									
ACCOMMODATION <i>hidaka</i>	1	.0335	7	.064	30.5	46	120	50	50
<i>50 aft</i>	1	.0225	7	.064	31.3	46	25	50	50
<i>navigation</i>	1	.007	7	.036	7.7	24	200	50	50
WIRELESS ...	1	.01	7	.044	15	31	200	50	50
SEARCHLIGHT ...									
MASTHEAD LIGHT ...	1	.002	3	.029	.4	7.8	250	50	50
SIDE LIGHTS ...	1	.002	3	.029	.4	7.8	50	50	L.C
COMPASS LIGHTS ...	1	.002	3	.029	.25	7.8	10	50	50
<i>Spot</i> DECK LIGHTS ...	1	.002	3	.029	.4	7.8	600	50	in conduit
CARGO LIGHTS ...	1	.0017	40	.0076	2.75	5.0	120	50	Cable Tyre.
ARC LAMPS ...									
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 ...										
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	.01	7	.044	21	31	60	V.I.R.	in heavy gauge conduit
VENTILATING FANS ...										
<i>Refinery motor</i>	1	1	.01	7	.044	21	31	150	50	50
<i>Shaples</i>	2	1	.01	7	.044	10	31	120	50	50



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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.
Electrical Engineers.

Date 14th Jan 1937

COMPASSES.

Distance between electric generators or motors and standard compass

80 feet

Distance between electric generators or motors and steering compass

74 feet

The nearest cables to the compasses are as follows:—

A cable carrying 25 Ampères on the feet from standard compass 6 feet from steering compass.

A cable carrying 25 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.

FOR WM. PICKERSGILL & SONS LIMITED.

Wm. Pickersgill

Builder's Signature.

Date 15th. Jan, 1937.

Chairman & Managing Director.

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. has been fitted)

out under special survey. The workmanship & materials used are good. The insulation resistance satisfactory. The dynamo governors, main boards, fuses, cables & fittings were tested under working conditions & found satisfactory. The vessel is eligible in my opinion for notation D.F. E.S.D.

Noted

Jan

28.1.37

Total Capacity of Generators 20 Kilowatts.

The amount of Fee ... £ 17: 10: When applied for, 18.1.1937

Travelling Expenses (if any) £ : : When received, 5.4.1937

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

Committee's Minute FRI 29 JAN 1937

Assigned See Old JE 32009



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Foundation