

No. 49292

Rpt. 13.

REPORT ON ELECTRICAL EQUIPMENT. (OTHER THAN FOR THE PROPULSION OF THE VESSEL)

Received at London Office SEP 28 1938

Date of writing Report 26 SEP 1938 When handed in at Local Office 26 SEP 1938 Port of HULL
 No. in Survey held at Goole Date, First Survey 1.9.38 Last Survey 10.9.1938
 Reg. Book. 83764 on the M.V. "SODALITY" (Number of Visits 5) Tons { Gross 851 Net 476
 Built at Widnes By whom built R. Williamson Shipyard No. 244 When built 1938
 Owners F. J. Edward & Sons Ltd. Port belonging to Goole
 Electric Light Installation fitted by The Humber Electrical Engineering Co. Contract No. 1938
 Is the Vessel fitted for carrying Petroleum in bulk No.

System of Distribution Parallel - Constant pressure - two wire.
 Pressure of supply for Lighting 220 volts, Heating ✓ 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 No, is an adjustable regulating resistance fitted in series with each shunt field ✓
 approved ✓ Have certificates of test results for machines under 100 kw. been submitted and
 Have certificates for generators under 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. 40KW. Starboard - 18KW. Port. 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 Engine Room Port side adjacent to Generator
 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 Ordinary, 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 ✓, is the non-hygroscopic insulating material of an approved type ✓, 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 Generators: - Double pole contact breaker with overload trip. Outgoing circuits. D.P. switches & 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 ✓ Instruments on main switchboard 2 ammeters 1
 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 & switches
 Switches, Circuit Breakers and Fusible Cut-outs, ✓ have the reversed do these comply with the requirements of the Rules Yes are the fusible cutouts of an approved type Yes



current protection devices been tested under working conditions *Yps* are all fuses labelled as per rule *Yps*

Joint Boxes, Section and Distribution Boards, is the construction, protection, insulation, material, and position of these as per rule *Yps*

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 *Yps*

If the cables are insulated otherwise than as per Rule, are they of an approved type *Yps* **Fall of Pressure,** state maximum between bus bars and any point of the installation under maximum load *Light 2 volts Power 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 *Yps* **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 *Yps* or waterproof insulating tape *Yps* **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 *Yps* are cables laid under machines or floorplates *Yps* if so, are they adequately protected *Yps*

Are cables in machinery spaces, galleys, lavatories, bathrooms and latrines lead covered or run in conduit *Yps*

Support and Protection of Cables, state how the cables are supported and protected *Clipped to steel work or run in conduit*

If cables are run in wood casings, are the casings and caps secured by screws *Yps*, are the cap screws of brass *Yps*, are the cables run in separate grooves *Yps* If armoured and lead covered cables are secured by metal clips, are the clips spaced as per Table VIII *Yps*

Refrigerated Chambers, are the cables and fittings in accordance with the special requirements *Yps*

Joints in Cables, state if any, and how made, insulated, and protected *Yps*

Watertight Glands and Deck Tubes, are all cables passing through decks and watertight bulkheads provided with deck tubes or watertight glands *Yps* **Bushes in Beams and Non-watertight Partitions,** where unarmoured cables pass through beams and non-watertight partitions, are the holes efficiently bushed *Yps* state the material of which the bushes are made *lead*

Earthing Connections, state what earthing connections are fitted and their respective sectional areas *Yps* are their connections made as per Rule *Yps*

Alternative Lighting, are the groups of lights in the propelling machinery space arranged as per Rule *Yps* **Emergency Supply,** state position and method of control of the emergency supply and how the generator is driven *Yps*

Navigation Lamps, are these separately wired *Yps* controlled by separate switch and separate fuses *Yps* are the fuses double pole *Yps* are the switches and fuses grouped in a position accessible only to the officers on watch *Yps* has each navigation lamp an automatic indicator as per Rule *Yps* **Secondary Batteries,** are they constructed and fitted as per Rule *Yps* are they ventilated as per Rule *Yps*

Fittings, are all fittings on weather decks, in stokeholds and engine rooms and wherever exposed to drip or condensed moisture, watertight *Yps* 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 *Yps* are any fittings placed in spaces where inflammable or explosive dust or gases are liable to be present, if so, how are they protected *Yps* how are the cables led *Yps* where are the controlling switches situated *Yps* are all fittings suitably ventilated *Yps* are all switches and lampholders constructed wholly of non-ignitable, non-absorbent materials *Yps*

Heating and Cooking Appliances, are they constructed and fitted as per Rule *Yps* are air heaters constructed and fitted as per Rule *Yps*

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

Motors, are their working parts readily accessible *Yps* are the coils self-contained and readily removable for replacement *Yps* are the brushes, brush holders, terminals and lubricating arrangements as per Rule *Yps* are the motors placed in well-ventilated compartments in which inflammable gases cannot accumulate and clear of all inflammable material *Yps* are they protected from mechanical injury and damage from water, steam or oil *Yps* are their axes of rotation fore and aft *Yps* 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 *Yps* if not of this type, state distance of the combustible material horizontally or vertically above the motors *Yps* and *Yps* have machines of over 100 BHP been inspected by the Surveyors during manufacture and testing *Yps* have certificates for all motors for essential services been supplied and approved *Yps* **Control Gear and Resistances,** are the generator field and motor speed regulators, starters and controllers constructed and fitted as per Rule *Yps* **Lightning Conductors,** where lightning conductors are required, are these fitted as per Rule *Yps* **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 *Yps* are all fuses of the filled cartridge type *Yps* are they of an approved type *Yps* 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 *Yps* **Spare Gear,** if the vessel is for open sea service have spares been supplied as per Rule *Yps* are they suitably stored in dry situations *Yps* *Scott's 6" Spans are aboard remainder to be checked & Green fitted? - See letter dated 21-9-38.*

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	One	40	230	182	1000	60 BHP. Heavy Oil Engine	Heavy Oil	Above 150° F.
AUXILIARY	One	18	"	82	"	"	do	do
EMERGENCY						Lawrence Scott Dynamo's 77419 + 77420 respectively		
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.	In Circuit.	Rule.			
MAIN GENERATOR	2	0.150	19	0.72	182	194	110	V.I.R.	L.C.
EQUALISER CONNECTIONS									
AUXILIARY GENERATOR	One	0.075	19	0.72	82	97	36	do	Conduit.
EMERGENCY GENERATOR									
ROTARY TRANSFORMER MOTOR GENERATOR									
ENGINE ROOM	One	0.0015	1	0.44	2	6.1	60	do	L.C. & Arm.
BOILER ROOM									
AUXILIARY SWITCHBOARDS - Navigation	One	0.003	3	0.36	2	12	270	do	Conduit.
ACCOMMODATION									
Forward	One	0.0045	7	0.29	6	18.2	240	do	Conduit
Aft	One	0.01	7	0.44	12	31	72	do	do
Main Sub Circuit	One	0.0015	1	0.44	1	6.1	50	do	L.C.
WIRELESS									
SEARCHLIGHT									
MASTHEAD LIGHT	One	0.0015	1	0.44	0.3	6.1	260	do	L.C. & Arm
SIDE LIGHTS	One	"	1	0.44	0.3	"	40	do	do
COMPASS LIGHTS	One	"	1	0.44	0.3	"	24	do	do
POOP LIGHTS	One	"	1	0.44	0.3	"	280	do	Conduit
CARGO LIGHTS	One	0.003	3	0.36	One	12	30	do	L.C.
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	One	One	0.075	19	0.72	93	97	140	V.I.R.	L.C.
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	One	One	0.06	19	0.64	68.5	83	420	V.I.R.	Conduit
WINCHES, FORWARD	One	One	0.06	"	"	64	"	390	"	"
WINCHES, AFT	One	"	"	"	"	"	"	120	"	"
STEERING GEAR										
(a) MOTOR GENERATOR										
(b) MAIN MOTOR	One	One	0.01	7	0.44	20	31	270	"	"
WORKSHOP MOTOR										
VENTILATING FANS										
Oil Separator		One	0.01	7	0.44	18	31	50	"	"
Motor	One	One	0.002	3	0.29	1.5	7.8	50	"	"
Capstan	One	One	0.03	19	0.44	52	53	65	"	"

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.

W. E. Stutter Electrical Engineers. Date _____

COMPASSES.

Minimum distance between electric generators or motors and standard compass 10 feet.
 Minimum distance between electric generators or motors and steering compass 18 feet.
 The nearest cables to the compasses are as follows :-
 A cable carrying 2 Amperes 10 feet from standard compass 15 feet from steering compass.
 A cable carrying 2 Amperes 10 feet from standard compass 15 feet from steering compass.
 A cable carrying 20 Amperes 10 feet from standard compass 18 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 Nil degrees on any course in the case of the steering compass.

PER PRO
THE GOOLE SHIPBUILDING & REPAIRING CO. LTD.
L. F. Briggs Builder's Signature. Date _____

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.)

This Electro installation has been fitted on board under Special Survey in accordance with the approved plans & the Rules. The workmanship & materials are good & when tried under full working conditions & subjected to the tests prescribed in the Rules it was found satisfactory in every respect. The Electrical Spans require to be completed. It is stated these will be checked on board at Greenkith.

W. E. Stutter
 18/10/38.

Total Capacity of Generators 58 Kilowatts.

The amount of Fee ... £ 28: 6 : 27 SEP 1938

Travelling Expenses (if any) £ 5: 5 : 23-11-38

Committee's Minute See Minute on 20/10/38
 Assigned _____

2m. 12. 36. - Transfer. The Surveyors are requested not to write on or below the space for Committee's Minute.)

