

REPORT ON ELECTRICAL EQUIPMENT.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL) Received at London Office JAN 18 1939

Date of writing Report 10th Jan, 1939 When handed in at Local Office 17 JAN 1939 Port of Sunderland
 No. in Survey held at Sunderland Date, First Survey 9th Nov, 1938 Last Survey 10th January 1939
 Reg. Book. Supp. 87277 on the M.V. "BRITISH GENIUS" Tons { Gross 8553
 Net 4961
 Built at Sunderland By whom built W. Donfractons, Ltd. Yard No. 644 When built 1939
 Owners British Tanker Co. Ltd. Port belonging to London
 Electric Light Installation fitted by The Sunderland Eng'g. Co. Ltd. Contract No. 644 When fitted 1939
 Is the Vessel fitted for carrying Petroleum in bulk Yes

System of Distribution Double wire volts, Heating — volts, Power 110 volts.

Pressure of supply for Lighting 110 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 2 machines arranged to run in parallel 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, certs. herewith Have machines over 100 kw. been inspected by the Surveyors during manufacture and testing None fitted

Have certificates for generators under 100 kw. been supplied and approved Manufacturers' test certs. only supplied

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 forward end, 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 on raised platform at forward end of engine 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 —

is it of an approved type —, 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 Yes 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 oil, time limit + reverse current breakers on main generators; double pole knife switches and double pole fuses on auxiliary generators and on outgoing circuits; third pole of circuit breakers used for equalizer connection. Are cupboards or compartments containing switchboards composed of fire-resisting material or lined with approved material — Instruments on main switchboard Twelve ammeters Three

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 Yes 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 —

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 *Yes* **Fall of Pressure,** state maximum between bus bars and any point of the installation under maximum load *less than 5.3 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*

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

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

Support and Protection of Cables, state how the cables are supported and protected *L.C.A.B. cables secured to compass in machinery spaces; L.C.A.B. cables run in galleys, pipel along fire-escape passageway; L.C.A.B. cables in alleyways; are the cap screws of brass*

If cables are run in wood casings, are the casings and caps secured by screws *Yes* are the cap screws of brass *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 *home 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 & fibre*

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

Emergency Supply, state position and method of control of the emergency supply and how the generator is driven *Emergency lighting for engine room is provided fed from battery located near main switch-board.*

Navigation Lamps, are these separately wired *Yes* controlled by separate switch and separate fuses *Yes* are the switches and fuses grouped in a position accessible only to the officers on watch *Yes*

Secondary Batteries, are they constructed and fitted as per Rule *Yes* has each navigation lamp an automatic indicator as per Rule *Yes* are they ventilated as per Rule *Fitted in engine room near main switch-board.*

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 *Artic" fastlight fittings (2 in number) fitted in pump room L.C.A.B. cables led in galvanised steel pipe external to pump room where are the controlling switches situated on mesship accommodation*

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 *4* whether fixed or portable *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* and *Yes* if not of this type, state distance of the combustible material horizontally or vertically above the motors *Yes* have machines of over 100 BHP been inspected by the Surveyors during manufacture and testing *home fitted* have certificates for all motors for essential services been supplied and approved *Yes, Certs. furnished*

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 flameproof type approved for use in dangerous spaces *Yes* are they suitably stored in dry situations *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			Revs. per Min.	DRIVEN BY	WHERE DRIVEN BY AN INTERNAL COMBUSTION ENGINE.	
		Kilowatts.	Volts.	Amps.			Fuel Used.	Flash Point of Fuel.
MAIN	2	30	110	273	550	NA: Single exp. steam engine	Pure Oil	Above 150°F
AUXILIARY	1	8	110	73	600	NA: Triple exp. steam engine	Pure Oil	Above 150°F
EMERGENCY						Single exp. steam engine		

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.	In Circuit.	Rule.			
MAIN GENERATORS	2	2x.075	19	.072	273	57x2	44	V.C.	L.C.A.B.
EQUALISER CONNECTIONS	1	.075	19	.072	—	57	22	V.C.	L.C.A.B.
AUXILIARY GENERATOR	1	.04	19	.052	73	104	72	V.C.	L.C.A.B.
EMERGENCY GENERATOR									
ROTARY TRANSFORMER (MOTOR GENERATOR)									
ENGINE ROOM	1	.007	7	.036	23	24	180	V.I.R.	L.C.A.B.
BOILER ROOM	1	.007	7	.036	23	24	180	V.I.R.	L.C.A.B.
AUXILIARY SWITCHBOARDS	1	.045	7	.052	16	57	540	V.C.	L.C.A.B.
NAVIGATION LTA.	1	.007	7	.036	12	24	60	V.I.R.	L.C.A.B.
CHARGING BOARD	1	.007	7	.036	12	24	60	V.I.R.	L.C.A.B.
SEARCHLIGHT FEED	1	.0225	7	.064	60	75	980	V.C.	L.C.A.B.
ACCOMMODATION S.B. FEED:-	1	.06	19	.064	56.6	135	480	V.C.	L.C.A.B.
SUPPLY:- F.O.S.L. D.B.	1	.01	7	.036	3.6	31	300	V.I.R.	L.C.A.B.
AFT MND. H.C.P.	1	.007	7	.036	3.6	31	300	V.I.R.	L.C.A.B.
ENG. MND. H.C.P.	1	.01	7	.044	3.6	31	300	V.I.R.	L.C.A.B.
STAB. LTA. D.B.	1	.01	7	.044	3.6	31	300	V.I.R.	L.C.A.B.
PORT LTA. D.B.	1	.01	7	.044	3.6	31	300	V.I.R.	L.C.A.B.
AFT ACCOM. S.B. FEED:-	1	.0225	7	.064	28.1	46	180	V.I.R.	L.C.A.B.
SUPPLY:- F.O.S.L. D.B.	1	.007	7	.036	14.6	24	300	V.I.R.	L.C.A.B.
STAB. LTA. D.B.	1	.007	7	.036	14.6	24	300	V.I.R.	L.C.A.B.
WIRELESS	1	.0145	7	.052	20	57	540	V.C.	L.C.A.B.
SEARCHLIGHT	1	.0225	7	.064	60	75	978	V.C.	L.C.A.B.
MASTHEAD LIGHT	1	.003	1	.064	36	12.9	500	V.I.R.	L.C.A.B.
SIDE LIGHTS	1	.003	1	.064	36	12.9	60	V.I.R.	L.C.A.B.
COMPASS LIGHTS	1	.003	1	.064	36	12.9	40	V.I.R.	L.C.A.B.
STAN LIGHTS	1	.003	1	.064	36	12.9	700	V.I.R.	L.C.A.B.
CARGO LIGHTS									
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										
ENGINE ROOM CRANE	1	1	.01	7	.044	27	31	120	V.I.R.	L.C.A.B.
WINCHES, AFT										
REAR. MAGNY.	1	1	.0225	7	.064	65	75	240	V.C.	L.C.A.B.
STEERING GEAR										
(a) MOTOR GENERATOR										
(b) MAIN MOTOR										
WORKSHOP MOTOR	1	1	.01	7	.044	27	31	180	V.I.R.	L.C.A.B.
VENTILATING FAN	1	1	.0225	7	.064	39	46	120	V.I.R.	L.C.A.B.
E.R. AUXILIARIES S.B. FEED:-	1	1	.0145	7	.044	36.5	104	180	V.C.	L.C.A.B.
SUPPLY:- OIL PURIFIER	1	1	.01	7	.044	25.1	31	72	V.I.R.	L.C.A.B.
OIL PURIFIER	1	1	.0045	7	.044	11.3	18.5	120	V.I.R.	L.C.A.B.
PUMPING PUMP	1	1	.003	1	.044	11.3	18.5	120	V.I.R.	L.C.A.B.
E.R. VENT. FAN	1	1	.06	19	.064	79.1	135	180	V.C.	L.C.A.B.
CRANK CASE PUMP	1	1	.06	19	.064	79.1	135	180	V.C.	L.C.A.B.
VENT. FAN S.B. FEED:-	4	1	.0145	19	.052	33.9	104	120	V.I.R.	L.C.A.B.
SUPPLY:- W.F. FAN S.B. FEED:-	3	1	.0145	19	.052	33.9	104	120	V.I.R.	L.C.A.B.
SUPPLY:- 3 FANS										

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.

M^{case} Sunderland Long Eng Co Ltd. Electrical Engineers. Date 11 - 1. 1939
A. J. Gurney

COMPASSES.

Minimum distance between electric generators or motors and standard compass *300 feet*
 Minimum distance between electric generators or motors and steering compass *195 feet*
 The nearest cables to the compasses are as follows:—
 A cable carrying *.14* Ampères *on the* feet from standard compass *12* feet from steering compass.
 A cable carrying *.14* Ampères *12* 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 *Every* course in the case of the standard compass, and *Nil* degrees on *Every* course in the case of the steering compass.

W. DOXFORD & SONS, Limited,
Rausay Builder's Signature. Date *16th Aug. 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, etc. *The electrical equipment of this vessel has been installed under special survey. The materials used and the workmanship are good. On completion the equipment was run under working conditions, the dynamo engine governors were operated, the overload and reverse current trip mechanisms of the circuit breakers were adjusted and operated, the main switchboard, section boards, distribution boards, switches, fuses, cables, motors and fittings were examined and tested, the insulation resistance of all circuits was measured and the spare gear was checked. The electrical equipment is in my opinion suitable for a classed vessel carrying petroleum in bulk. The vessel is fitted with direction finding equipment and an echo sounding device.*

Total Capacity of Generators *68* Kilowatts.

The amount of Fee £ *29 : 6* : *14 JAN 1939*
 Travelling Expenses (if any) £ : : *7 JAN 1939*

Bantison
 Surveyor to Lloyd's Register of Shipping.

Committee's Minute *FRI 20 JAN 1939*
 Assigned *See F.E. Mackay rpt*

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

