

REPORT ON ELECTRICAL EQUIPMENT.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

APR -3 1940

Date of writing Report 27th March 1940 When handed in at Local Office 1. 4. 1940 Port of Glasgow
 No. in Survey held at Glasgow Date, First Survey 1940 Jan 11th Last Survey 26th March 1940
 Reg. Book. 41023, on the M.V. "SUTLEY" (Number of Visits 7) Tons { Gross 5187 Net 3041
 Built at Glasgow By whom built Messrs. C. Coucell Yard No. 428 When built 1940
 Owners Messrs. J. Nourse, Ltd. Port belonging to London
 Electric Light Installation fitted by H.T. Robertson & Co. Contract No. 428 When fitted 1940
 Is the Vessel fitted for carrying Petroleum in bulk no.

System of Distribution two 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 Yes

approved Yes Have certificates of test results for machines under 100 kw. been submitted and —

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 in engine room, 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 Yes

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 Yes

in metallic contact Yes Main Switch Boards, where placed near generators.

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 the conducting parts insulated from the slab with mica or micaite or other non-hygroscopic insulating material, and the slab similarly insulated from its framework Insidents.

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 —

Main Switchgear, description of switchgear for each generator and each outgoing circuit and arrangement of equalizer switches Generators and each outgoing circuit controlled by D.P. Switch and 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 —

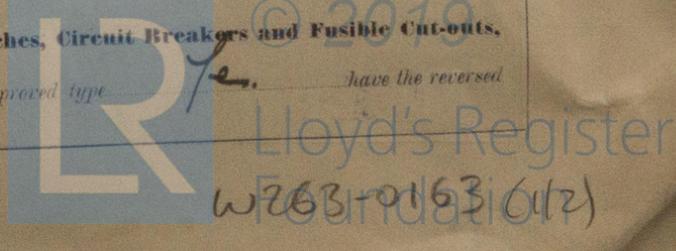
Instruments on main switchboard 2 ammeters 1

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, Circuit Breakers and Fusible Cut-outs, Yes, 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 **Joint Boxes, Section and Distribution Boards,** is the construction, protection, insulation, material, and position of these as per Rule fe

Cables: Single, twin, concentric, or multicore single & twin are the cables insulated and protected as per Tables IV, V, X or XI of the Rules fe

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

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

Support and Protection of Cables, state how the cables are supported and protected Main r.r. in conduit, engine room wiring L.C.B. clipped, wiring in accommodation L.C. clipped

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 fe

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

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

Earthing Connections, state what earthing connections are fitted and their respective sectional areas lead sheathing of cables efficiently earthed by means of clips or bonding glands

are their connections made as per Rule

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

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

has each navigation lamp an automatic indicator as per Rule fe **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 fe 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

how are the cables led

where are the controlling switches situated are all fittings suitably ventilated fe, are all switches and lampholders constructed wholly of non-ignitable, non-absorbent materials fe

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

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 fe, are the coils self-contained and readily removable for replacement fe, are the brushes, brush holders, terminals and lubricating arrangements as per Rule fe, are the motors placed in well-ventilated compartments in which inflammable gases cannot accumulate and clear of all inflammable material fe, are they protected from mechanical injury and damage from water, steam or oil fe, are their axes of rotation fore and aft fe, 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 fe **Control Gear and Resistances,** are the generator field and motor speed regulators, starters and controllers constructed and fitted as per Rule fe **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 fitted 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 fe

Spare Gear, if the vessel is for open sea service have spares been supplied as per Rule fe

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	2	16	110	136	600	Steam engine		
AUXILIARY								
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.	In Circuit.	Rule.			
MAIN GENERATOR	1	.15	37	.072	136	152	20	Rubber.	L.C.
EQUALISER CONNECTIONS									
AUXILIARY GENERATOR									
EMERGENCY GENERATOR									
ROTARY TRANSFORMER MOTOR GENERATOR									
ENGINE ROOM	1	.007	7	.036	12	24	6	"	L.C.B.
BOILER ROOM									
AUXILIARY SWITCHBOARDS									
ACCOMMODATION ENGINEERS' DB.	1	.007	7	.036	18	24	60	"	CONDUIT.
SALOON & BRIDGE.	1	.01	7	.044	20	31	250	"	"
POOP DB.	1	.007	7	.036	9	24	300	"	"
WIRELESS	1	.007	7	.036	9	24	250	"	"
SEARCHLIGHT									
MASTHEAD LIGHT	1	.002	3	.029	36	78	350	"	"
SIDE LIGHTS	1	.002	3	.029	36	78	60	"	L.C.
COMPASS LIGHTS	1	.002	3	.029	2	7.8	15	"	L.C.
POOP LIGHTS									
CARGO LIGHTS									
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	1	1	.01	7	.044	26	31	40	Rubber	L.C.B.
WORKSHOP MOTOR										
VENTILATING FANS										
OIL PURIFIERS	2	1	.0225	7	.064	34	46	45	"	"
CRANE	1	1	.007	7	.036	18	24	50	"	"
DOMESTIC REFRIG.	2	1	.01	7	.044	26	31	200	"	CONDUIT.

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.

H. T. Robertson & Co.

Electrical Engineers.

Date *28th March '40*

COMPASSES.

Distance between electric generators ~~motors~~ and standard compass

*90 feet.
88 feet.*

Distance between electric generators ~~motors~~ and steering compass

The nearest cables to the compasses are as follows:—

A cable carrying *2* Ampères *led into* feet from standard compass *led into* feet from steering compass.

A cable carrying *5* Ampères *8* feet from standard compass *5* 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

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 *nil* degrees on *anf.* course in the case of the standard compass, and *nil* degrees on *anf.* course in the case of the steering compass.

For CHARLES CONNELL & CO., Limited

W. McCallum SECRETARY

Builder's Signature.

Date *30 Mar. 1940*

Is this installation a duplicate of a previous case

no

If so, state name of vessel

M.V. "INDUS"

General Remarks (State quality of workmanship, opinions as to class, &c.)

The electrical equipment of this vessel has been fitted on board under special survey, tested under full working conditions and found satisfactory. The material and workmanship are good.

*Noted
8/4/40.*

RB

1/4/40

Total Capacity of Generators *30* Kilowatts.

The amount of Fee ... £ *22 : 10.*

When applied for,

19

Travelling Expenses (if any) £

When received.

8-4-1940

A. G. Fiddley
Surveyor to Lloyd's Register of Shipping.

Committee's Minute

GLASGOW

2 APR 1940

Assigned SEE ACCOMPANYING MACHINERY REPORT.



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