

REPORT ON ELECTRICAL EQUIPMENT.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

JUN -1 1937

Received at London Office

Date of writing Report 29th May 37 When handed in at Local Office 31st May 37 Port of Mahmra
 No. in Survey held at Mahmra Date, First Survey 24th April Last Survey 29th May 1937
 Reg. Book No. 9050 on the Single Screw Motor Tanker "REALF" (Number of Visits 19)
 Tons { Gross 8083
 Net 4741
 Built at Mahmra By whom built Kockums M. T. M. Yard No. 194 When built 1937
 Owners MS Asghard Port belonging to Moro
 Electric Light Installation fitted by Kockums M. T. M. Contract No. ✓ When fitted 1937
 Is the Vessel fitted for carrying Petroleum in bulk Yes

System of Distribution

Pressure of supply for Lighting 110 volts, Heating 110 volts, Power 110 volts.Direct or Alternating Current, Lighting Direct Power DirectIf 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 YesGenerators, do they comply with the requirements regarding temperature rise Yes are they compound wound Yesare 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 Yes is an adjustable regulating resistance fitted in series with each shunt field YesHave 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 YesPosition of Generators One on each side at fore end of motor space (Main generators). Are the lubricating arrangements of the generators as per Rule Yes is the ventilation in way of the generators satisfactory Yes are they clear of all inflammable material Yes if situated near unprotectedwoodwork 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 YesEarthing, 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 In front of motor space, centre.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 Main of steel is all insulation of high dielectric strength and of permanently high insulation resistance Yesis it of an approved type Yes if semi-insulating material is used, are all conducting parts insulated from the slab with mica or micamite or other non-hygroscopic insulating material, and the slab similarly insulated from its framework No conducting parts pass through the slab or panel. 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 Inst. between panel & bld. 900 mm.accessibility of all parts Yes absence of fuses on back of board ✓ 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 - A double pole circuit breaker with overload and reversed current trips & a single pole equalizer switch.Circuits - A double pole linked switch and a fuse on each pole.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 Yes Instruments on main switchboard 7 ammeters 3volts. ✓ synchronising device for paralleling purposes. For compound machines is the ammeter connected on the opposite pole to equaliser connectionEarth Testing, state what means are provided at the main switchboard for indicating the state of the insulation of the system Ohm meter, lampsdo 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*

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 *Less than allowed in Sec. 4*

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 fixed 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, laundries, bathrooms and lavatories lead covered or run in conduit *Lead cov. & arm.*

Support and Protection of Cables, state how the cables are supported and protected *Supported by metal clips and where necessary protected by steel sheet*

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 *No joints in main or power cables. Where joints exist, metal joint boxes are used.*

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 *Lamps contained in gastight fittings*

are all fittings suitably ventilated *Yes* *Outside the dangerous space.* 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*

Arc 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 as a rule* 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 filled 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 and some motors with shafts in addition.*

PARTICULARS OF GENERATING PLANT.									
DESCRIPTION OF GENERATOR.	No. of	RATED AT				DRIVEN BY	WHERE DRIVEN BY AN INTERNAL COMBUSTION ENGINE.		
		Kilowatts.	Volts.	Amps.	Revs. per Min.		Fuel Used.	Flash Point of Fuel.	
MAIN	2	2.75	115	652	350	Heavy oil engines	Heavy oil	Above 150° F.	
AUXILIARY	1	15	110	137	600	Heavy engine			
EMERGENCY									
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. mm.	No.	Diameter.	Circuit.	Rule.			
MAIN GENERATOR	2	185	37	2.52	682	700	max. 27	Rubber	Lead covered & steel tape arm.
EQUALISER CONNECTIONS	2	185	37	2.52	-	-	27	"	"
AUXILIARY GENERATOR	1	95	19	2.52	137	180	50	"	"
EMERGENCY GENERATOR									
ROTARY TRANSFORMER									
ENGINE ROOM	1	16	7	1.71	40	50	30	"	"
BOILER ROOM	1	16	7	1.71	40	50	30	"	"
AUXILIARY SWITCHBOARDS	A	50	19	1.83	60	100	112	"	"
	B	4	7	0.86	6	20	126	"	"
	C	16	7	1.71	30	50	52	"	"
	D	16	7	1.71	30	50	58	"	"
ACCOMMODATION	1	35	7	0.52	max. 4	8	max. 48	"	Lead covered.
WIRELESS	1	35	7	2.53	-	75	120	"	Lead covered & steel tape arm.
SEARCHLIGHT SUEZ	1	35	7	2.53	-	75	195	"	"
MASTHEAD LIGHT	1	15	7	0.52	0.6	8	max. 140	"	"
SIDE LIGHTS	1	15	7	0.52	0.6	8	40	"	"
COMPASS LIGHTS	1	15	7	0.52	-	8	20	"	"
POOP LIGHTS	1	15	7	0.52	0.6	8	22.7	"	"
CARGO LIGHTS									
ARC LAMPS									
HEATERS	1	70	19	2.51	105	120	72	"	"

MOTOR CONDUCTORS.									
DESCRIPTION.	No. of Motors.	CONDUCTORS.		COMPOSITION OF STRAND.		TOTAL MAXIMUM CURRENT.		Approximate Length (Lead and Return) Feet.	Insulated with
		No. Per Pole.	Total Nominal Area per Pole Sq. mm.	No.	Diameter.	In Circuit.	Rule.		
BALLAST PUMP	1	1	35	7	2.53	68	75	50	Rubber
MAIN BILGE LINE PUMPS	1	1	35	7	2.53	68	75	50	Lead covered & steel tape arm.
GENERAL SERVICE PUMP									
EMERGENCY BILGE PUMP	1	1	35	7	2.53	64	75	46	"
SANITARY PUMP & bilge	2	1	150	37	2.3	192	203	max. 45	"
CIRC. SEA WATER PUMPS	1	1	25	7	2.13	60	65	26	"
CIRC. FRESH WATER PUMPS	1	1	35	7	2.53	68	75	73	"
COMPRESSOR CO ₂	1	1	25	7	2.53	68	75	73	"
FRESH WATER PUMP	1	1	25	7	0.67	7	15	56	"
ENGINE TURNING GEAR	1	1	70	19	2.51	112	120	54	"
ENGINE REVERSING GEAR	1	1	70	19	2.51	112	120	54	"
LUBRICATING OIL PUMPS	2	1	185	37	2.52	224	240	max. 50	"
OIL FUEL TRANSFER PUMP	1	1	16	7	1.71	40	50	50	"
WINDLASS									
WINCHES, FORWARD									
WINCHES, AFT									
STEERING GEAR—									
(a) MOTOR GENERATOR	1	1	50	19	1.83	max. 20	100	93	Rubber
(b) MAIN MOTOR	1	1	50	19	1.83	max. 20	100	93	Lead covered & steel tape arm.
WORKSHOP MOTOR	1	1	6	7	1.05	24	30	44	"
VENTILATING FANS	1	1	6	7	1.05	16	30	46	"
lubr. oil separator	1	1	95	19	2.52	137	150	62	"
" " heater	1	1	6	7	1.05	16	30	52	"
fuel oil separator	1	1	150	37	2.3	190	200	50	"
" " heater									

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.

Vilho Rindgren Electrical Engineers.

Date 31/5 1937

COMPASSES.

Distance between electric generators or motors and standard compass *From engine room to bridge.*

Distance between electric generators or motors and steering compass

The nearest cables to the compasses are as follows:—

A cable carrying Amperes feet from standard compass feet from steering compass.

A cable carrying Amperes feet from standard compass feet from steering compass.

A cable carrying Amperes 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 degrees on course in the case of the standard

compass, and degrees on course in the case of the steering compass.

KOCKUMS
MEKANISKA VERKSTADS AKTIEBOLAG

S. Rindgren Builder's Signature.

Date 31st May 1937

Is this installation a duplicate of a previous case *Yes* If so, state name of vessel *M/T "ORION", Yard No. 184.*

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

The above described electrical equipment installation has been fitted onboard under survey in accordance with the Rules & instructions and has been tested and found satisfactory.

The workmanship and the materials are good.

Noted
L.J.
2/6/37.

Total Capacity of Generators 165 Kilowatts.

The amount of Fee ... £ 709.80 When applied for, 31st May 1937.

Travelling Expenses (if any) £ : : 23.63 When received, 23/6

Osmond A. Boring
Surveyor to Lloyd's Register of Shipping.

Committee's Minute

FRI 4 JUN 1937

Assigned

See memo T.E. 1547