

REPORT ON ELECTRIC FITTINGS.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL) 18 SEP 1929

Received at London Office

Date of writing Report 11th Sept 1929 When handed in at Local Office 12th Sept 1929 Port of Copenhagen

No. in Survey held at Copenhagen Date, First Survey 10th June Last Survey 6th September 1929
Reg. Book. (Number of Visits 26)

41758 on the Twin Screw Motor Vessel "PACIFIC RANGER." Tons Gross 6866.46 Net 4186.33

Built at Copenhagen By whom built Akt. Burmeister & Wain's Maskin og Skibsbyggeri. Yard No. 561. When built 1929.

Owners The Transoceanic Steamship Co., Ltd. Port belonging to London

Electric Light Installation fitted by Akt. Burmeister & Wain's Maskin og Skibsbyggeri Contract No. 561. When fitted 1929.

Is the Vessel fitted for carrying Petroleum in bulk No.

System of Distribution Two conductors, insulated system.

Pressure of supply for Lighting 220 volts, Heating 220 volts, Power 220 volts.

Direct or Alternating Current, Lighting Direct current. Power Direct current.

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 rating yes, are they compound wound yes

are they over compounded 5 per cent. 0 per cent, 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 yes.

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 In the machinery space.

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. Not situated near unprotected woodwork or other combustible material.

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 a platform at the after end of the machinery space.

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. Not situated near unprotected woodwork or other combustible material.

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.

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.

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, proportion of omnibus bars yes.

individual fuses to voltmeter, pilot or earth lamp yes, connections of switches yes.

Main Switchgear, description of switchgear for each generator and each outgoing circuit, and arrangement of equalizer switches For each generator:—

a three pole combined overload and reverse current breaker. ✓

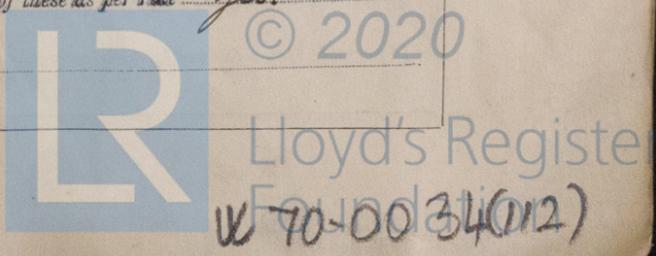
For each outgoing circuit:— a double pole switch and a double pole fuse.

Instruments on main switchboard 7 ammeters 3 voltmeters ✓ synchronising device for paralleling purposes.

Earth Testing, state what means are provided at the main switchboard for indicating the state of the insulation of the system One Voltmeter is provided with 0-100 scale for 220 volt and the switchboard is provided with 2 earth testing lamps.

Switches, Circuit Breakers and Fusible Cut-outs, do these comply with the requirements of the Rules 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 & twin* are the cables insulated and protected as per Tables IV or V of the Rules *Table IV and Table V and varnished cambric cables*

Fall of Pressure, state maximum between bus bars and any point of the installation under maximum load *abt. 3.5 Volts.*

Cable Sockets and other connections, are the ends of all cables having a sectional area of 0.04 square inch and above provided with soldering sockets *Yes.*

Paper Insulated Cables. If cables are paper covered, is the dielectric at the exposed ends of the conductor protected from moisture by being suitably sealed with insulating compound *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.*

Support and Protection of Cables, state how the cables are supported and protected *The cables are supported by screwed clips and where necessary protected by sheet iron casings or iron tubes. - Steel wire armoured cables used.*

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, if lights are fitted, 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 cables.*

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 *No earthing connections.*

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 *No.*

are any fittings placed in spaces where inflammable or explosive dust or gases are liable to be present, if so, how are they protected *No.*

how are the cables led

where are the controlling switches situated *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.*

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.* not situated near unprotected woodwork or other combustible material, if not of this type, state distance of the combustible material horizontally or vertically above the motors *Yes.* and *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 *Flash point of oil above 150° F.*

If portable lamps for use in dangerous spaces are supplied, are they of a type approved by the Home Office *Yes.*

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	3	165	220	750	300	Auxiliary Diesel engines	Crude oil	above 150° F.
AUXILIARY	1	7.5	220	abt 35	600	Petrol motor.	Petroleum	" " "
EMERGENCY	1	85	220	386	7.5	7.5	Aut Diesel Eng (2 Cyl)	" " "
ROTARY TRANSFORMER						for extra insulated hold		

GENERATOR, LIGHTING AND HEATING CONDUCTORS.

DESCRIPTION.	CONDUCTORS.		COMPOSITION OF STRAND.		TOTAL MAXIMUM CURRENT AMPERES.		Approximate Length (Lead and Return) in Meters	Insulated with	HOW PROTECTED.
	No. per Pole.	Total Effective Area per Pole Sq. Ins.	No.	Diameter.	In Circuit.	Rule.			
MAIN GENERATOR	2	0.4 x 2	61	0.092"	750	836	56-48 x 38	Varnished cambric	Lead covered, wire armoured and braided.
EQUALISER CONNECTIONS	1	0.4	61	0.092"			28-24 x 19	" "	" " "
AUXILIARY GENERATOR	1	10 m/m ²			32	38	abt 8	" "	" " "
EMERGENCY GENERATOR									
ROTARY TRANSFORMER GENERATOR									
ENGINE ROOM STARS	1	4 m/m ²	7	0.85 m/m	abt 9A	22	abt 20	Vulcanized rubber	" " "
ENGINE ROOM PORT	1	4 m/m ²	7	0.85 m/m	" 9A	22	" 20	" "	" " "
AUXILIARY SWITCHBOARDS									
NAVIGATION	1	4 m/m ²	7	0.85 m/m	" 6A	22	" 45	" "	" " "
CREW SPACE AFT	1	4 m/m ²	7	0.85 m/m	" 5A	22	" 60	" "	" " "
FORECASTLE	1	2.5 m/m ²	7	0.67 m/m	" 2.3A	15.5	" 140	" "	" " "
ACCOMMODATION PASSENGERS etc.	1	10 m/m ²	7	1.35 m/m	" 28	38	" 40	" "	" " "
SMOKING ROOM AND SOCIAL ROOM etc.	1	4 m/m ²	7	0.85 m/m	" 10V	22	" 50	" "	" " "
WIRELESS	1	6 m/m ²	7	1.05 m/m	" 15A	29	" 35	" "	" " "
SEARCHLIGHT	1	1.5 m/m ²	1	1.38 m/m	" 0.4A	10.2	" 110	" "	" " "
MASTHEAD LIGHTS Each	1	1.5 m/m ²	1	1.38 m/m	" 0.4A	10.2	" 25	" "	" " "
SIDE LIGHTS	1	1.5 m/m ²	1	1.38 m/m	" 0.07	10.2	" 10	" "	" " "
COMPASS LIGHTS	1	1.5 m/m ²	1	1.38 m/m	" 0.12	10.2	" 200	" "	" " "
POOP LIGHTS	1	1.5 m/m ²	1	1.38 m/m	" 2.3	10.2	" 30	" "	" " "
CARGO LIGHTS	1	1.5 m/m ²	1	1.38 m/m	" 46	48.5	" 120	" "	" " "
ARC LAMPS	1	95 m/m ²	19	2.52 m/m	" 140	151	" 60	" "	" " "
HEATERS ACCOMMOD. PORT STARS	1	95 m/m ²	19	2.52 m/m	" 140	151	" 60	" "	" " "

MOTOR CONDUCTORS.

DESCRIPTION.	No. of Motors.	CONDUCTORS.		COMPOSITION OF STRAND.		TOTAL MAXIMUM CURRENT AMPERES.		Approximate Length (Lead and Return) in Meters	Insulated with	HOW PROTECTED.
		No. Per Pole.	Total Effective Area per Pole Sq. Ins.	No.	Diameter.	In Circuit.	Rule.			
BALLAST PUMP	1	1	95 m/m ²	19	2.52 m/m	150	148	abt 44	Vulcanized lead covered, wire rubber armoured and braided	150 x 37
MAIN BILGE LINE PUMPS	2	1	10 m/m ²	7	1.35 m/m	37	38	" 42	" "	" " "
GENERAL SERVICE PUMP										
EMERGENCY BILGE PUMP										
SANITARY PUMP	1	1	10 m/m ²	7	1.35 m/m	37	38	" 43	" "	" " "
COOLING WATER PUMPS	2	1	70 m/m ²	19	2.16 m/m	118	124	" 70	" "	" " "
CIRC. FRESH WATER PUMPS										
AIR COMPRESSOR										
FRESH WATER PUMP	1	1	6 m/m ²	7	1.05 m/m	22	29	" 40	" "	" " "
ENGINE TURNING GEAR	2	1	10 m/m ²	7	1.35 m/m	32	38	" 22	" "	" " "
ENGINE REVERSING GEAR										
LUBRICATING OIL PUMPS	3	1	16 m/m ²	7	1.70 m/m	48	48.5	" 26	" "	" " "
OIL FUEL TRANSFER PUMP	2	1	6 m/m ²	7	1.05 m/m	22	29	" 50	" "	" " "
WINDLASS	1	1	0.12	19	0.092"	190	252	" 64	Varnished cambric	" " "
WINCHES, FORWARD	6	2	0.4	61	0.092"	abt 960/24	1200	" 190	" "	" " "
WINCHES, AFT	6	2	0.4	61	0.092"	" 960/24	1200	" 100	" "	" " "
WARPING WINCH	1	1	0.12	19	0.092"	160	200	" 74	" "	" " "
STEERING GEAR										
(a) MOTOR GENERATOR	2	1	35 m/m ²	19	1.53 m/m	75	77.5	" 140	Vulcanized rubber	" " "
(b) MAIN MOTOR	4	1	10 m/m ²	7	2.13 m/m	26	38	" 40	" "	" " "
WORKSHOP MOTORS	2	1	25 m/m ²	7	2.13 m/m	52	62.5	" 61	" "	" " "
VENTILATING FANS	2	1	150 m/m ²	37	2.27 m/m	200	204	" 30	" "	" " "
CO ₂ COMPRESSORS	2	1	16 m/m ²	7	1.70 m/m	44	48	" 30	" "	" " "
BRINE PUMPS	1	1	6 m/m ²	7	1.05 m/m	25	29	" 30	" "	" " "
REF. COOLING WATER PUMP	1	1	16 m/m ²	7	1.70 m/m	40	48	" 35	" "	" " "
PROVISION REC. CO ₂ COMPRES.	1	1	6 m/m ²	7	1.05 m/m	21	29	" 40	" "	" " "
" " BRINE PUMP	1	1	6 m/m ²	7	1.05 m/m	21	29	" 40	" "	" " "
OIL PURIFIERS	3	1	2.5 m/m ²	7	0.67 m/m	10.8	15.5	" 18	" "	" " "

All Conductors are of annealed copper conforming to British Standard Specification No. 7.
 The Insulated Conductors are guaranteed to withstand the immersion and resistance tests specified in the Rules.
 The foregoing is a correct description.

AKTIESELSKABET
 BURMEISTER & WAINSKIN-03 SKIBSBYGGERI

Electrical Engineers. Date _____

COMPASSES.

Distance between electric generators or motors and standard compass *abt 30 metres between generators, and 18 metres between motors and standard compass.*

Distance between electric generators or motors and steering compass " 30 " " " " 18 " " " " *steering compass.*

The nearest cables to the compasses are as follows:—

A cable carrying *abt 6* Ampères *4 metres* feet from standard compass *6 metres* feet from steering compass.

A cable carrying *0.07* Ampères *to lamp in feet* from standard compass *and in 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.

AKTIESELSKABET
 BURMEISTER & WAINSKIN-03 SKIBSBYGGERI

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, &c. _____)

The whole electric lighting, power and heating installations as above described have been fitted in accordance with the requirements of the Society's Rules, the approved plan and the Secretary's letters E. dated the 20th March and 1st June 1929.

The material used in the installation and the workmanship are of good quality in every respect. —

On completion the whole electric installation has been tested under full power working condition and found satisfactory.

Recommend the vessel to have notation of Electric light in the Register Book.

It is submitted that
 this vessel is eligible for
 THE RECORD.

Elec. Light

DT. 19/9/29

Total Capacity of Generators *587.5* ~~*502.5*~~ Kilowatts.

£ = *kr. 18.20*
 The amount of Fee ... *kr. 801.93* : { When applied for, *13.9.19.29*

Travelling Expenses (if any) £ : : { When received, *19.11.29*

A. F. Johnson
 Surveyor to Lloyd's Register of Shipping.

Committee's Minute *1UE. 24 SEP 1929*

FRI. 27 SEP 1929

Assigned _____

Elec. Lt.



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Lloyd's Register
 Foundation

1m, 1228.—Transfer.
 (The Surveyors are requested not to write on or below the space for Committee's Minute.)