

REPORT ON ELECTRIC FITTINGS.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

Received at London Office 15 MAR 1926

Date of writing Report 11th March 1926 When handed in at Local Office 13-3-1926 Port of Rouen

No. in Survey held at Rouen Date, First Survey November 2nd Last Survey February 6th 1925-6
Reg. Book. (Number of Visits... 1st...)

on the M.V. "TIJUCA"

Tons { Gross 537 1/2
Net 325 1/2

Built at Rouen By whom built Bk de Normandie Yard No. E-5 When built 1926

Owners Will. Wilhelmsen Port belonging to Lonsberg

Electric Light Installation fitted by Baniers de Normandie Contract No. When fitted 1926

System of Distribution Two-wire insulated system ✓

Pressure of supply for Lighting 110 ✓ volts, Heating - 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. 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 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 Port side of 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 -, 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 bed-plates 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 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 Marble slab ✓, 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 ✓

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 Double pole circuit breakers with overload and reversed current trips, central pole equalizer switch interlocked with circuit breaker so that switch closes before and opens after main circuit breaker.

Instruments on main switchboard Eight ammeters ✓ Disc ✓ 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 Earth 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, ~~two~~ ~~or~~ ~~more~~ *Yes* are the cables insulated and protected as per Tables IV or V of the Rules *Yes*

Fall of Pressure, state maximum between bus bars and any point of the installation under maximum load *5 volts per m; 1.3 volts lighting*

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 *Armoured and lead covered cables, secured to perforated galvanized iron plates, protected by iron casings in cargo tween decks. 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 *Junction boxes*

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 armoured cables pass through beams and non-watertight partitions, are the holes efficiently bushed *Yes* state the material of which the bushes are made *Yes*

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 *Starboard side engine room in tween deck, generator controlled by circuit breaker on main switchboard, driven by direct coupled Hill diesel engine*

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 where 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 *None*

*are any fittings placed in spaces where inflammable or explosive dust or gases are liable to be present, if so, how are they protected *None**

*how are the cables led *Yes**

*where are the controlling switches situated *Yes**

Searchlight Lamps, No. of *None*, whether fixed or portable *Yes*, are their fittings as per Rule *Yes*

Arc Lamps, other than searchlight lamps, No. of *None*, 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 *Mainly* 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**

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*

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	2	100	220	455	400	Diesel motor	Brake oil above 150° F	
AUXILIARY	1	66	220	300	400	Diesel motor		
EMERGENCY	1	13	220	59	550	Hill diesel motor		
ROTARY TRANSFORMER	2	10	110	90	1600	Electric motors		

LIGHTING AND HEATING CONDUCTORS.

Ref. No.	DESCRIPTION	No. of Conductors	Effective Area of each Conductor	COMPOSITION OF STRAND		Total Maximum Current (Amperes)	Approximate Length (Lead and Return) in metres	Insulated with	HOW PROTECTED
				No.	Diameter				
	MAIN GENERATOR	2	376	61	25/10 m/m	455	33.9 26	Rubber	Lead and armoured
	EQUALISER CONNECTIONS	1	196	37	24/10			"	"
	AUXILIARY GENERATOR	2	196	37	24/10	300	21	"	"
	EMERGENCY GENERATOR	2	29.2	19	14/10	59	16	"	"
	ROTARY TRANSFORMER	2	43.1	19	17/10	90	7.5	"	"
	AUXILIARY SWITCHBOARDS								
	ENGINE ROOM	2	6.65	7	11/10	16.8	47	"	"
	POPEL ROOM	2	4.65	7	9/10	12.7	37	"	"
	ACCOMMODATION	2	2.01	1	16/10	7	17	"	"
	Messing lights	2	6.65	7	11/10	5.5	65	"	"
	Boat accommodation	2	12.1	7	16/10	24	48	"	"
	AP	2	6.65	7	11/10	10.5	105	"	"
	officers	2	6.65	7	11/10	16.5	32	"	"
	AP. held on deck	2	12.1	7	16/10	25.5	41	"	"
	Gal. "	2	25.2	19	15/10	41.0	47	"	"
	Galley range	2	4.65	7	9/10	8	43	"	"
			m/m ²		m/m		metres		
	WIRELESS	2	12.1	7	16/10	18	61	Rubber	Lead and armoured
	SEARCHLIGHT								
	MASTHEAD LIGHT	2	1.13	1	12/10	1.8	105	"	"
	SIDE LIGHTS	2	1.13	1	12/10	1.8	12	"	"
	COMPASS LIGHTS	2	.63	1	9/10	.2	6	"	"
	POOP LIGHTS	2	1.54	1	14/10	1.8	130	"	"
	CARGO LIGHTS	2	6.65	7	11/10	5.7	39	"	"
	ARC LAMPS								
	HEATERS	2	6.65	7	11/10	29	20	"	"

MOTOR CONDUCTORS.

Ref. No.	DESCRIPTION	No. of Motors	Effective Area of each Conductor	COMPOSITION OF STRAND		Total Maximum Current (Amperes)	Approximate Length (Lead and Return) in metres	Insulated with	HOW PROTECTED
				No.	Diameter				
	BALLAST PUMP	1	25.2	19	13/10	59	30	Rubber	Lead and armoured
	MAIN BILGE LINE PUMPS	1	12.1	7	16/10	40	30	"	"
	GENERAL SERVICE PUMP								
	EMERGENCY BILGE PUMP								
	SANITARY PUMP								
	CIRC. SEA WATER PUMPS	2	72.0	37	14/10	132	8	"	"
	CIRC. FRESH WATER PUMPS								
	AIR COMPRESSOR	1	4.65	7	9/10	20	17	"	"
	FRESH WATER PUMP	1	2.01	1	16/10	10	6	"	"
	ENGINE TURNING GEAR	2	12.1	7	16/10	40	30	"	"
	ENGINE REVERSING GEAR								
	LUBRICATING OIL PUMPS								
	OIL FUEL TRANSFER PUMP	1	12.1	7	16/10	40	9	"	"
	WINDLASS	1	212.0	37	27/10	180	92	"	"
	WINCHES, FORWARD	8	72.0	37	16/10	120	60	"	"
	WINCHES, AFT	4	72.0	37	16/10	120	62	"	"
	STEERING GEAR								
	(a) MOTOR TRANSFORMER	1	72.0	37	16/10	100	109	"	"
	(b) MAIN MOTOR	1	72.0	37	16/10	90	10	"	"
	WORKSHOP MOTOR	1	4.65	7	9/10	13.5	32	"	"
	VENTILATING FANS	2	53.9	19	19/10	100	17	"	"
	CO ₂ COMPRESSOR (Main)	2	212.0	37	27/10	232	40.4 50	"	"
	" (Binaries)	1	12.1	7	16/10	29	20	"	"
	Brine pumps (Main)	3	12.1	7	16/10	47	25-29	"	"
	" (Binaries)	1	12.1	7	16/10	5.6	20	"	"
	De-land separator	1	2.01	1	16/10	5.5	8	"	"

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.

M. W. ... Electrical Engineers. Date 12th Mars 1926

COMPASSES.

Distance between electric generators or motors and standard compass 30 metres
 Distance between electric generators or motors and steering compass 30 metres
 The nearest cables to the compasses are as follows:—
 A cable carrying .8 Amperes 2 metres feet from standard compass 2 metres 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 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 + 1 1/2° degrees on N.N.E. & E.N.E. course in the case of the standard compass, and + S° degrees on S.E. course in the case of the steering compass, and - 1/4° degrees on S.W. course in the case of the steering compass.

CHANTIERS DENORMAND
 S
 Grand-Quevilly (S.E. 47° 21')

M. W. ... Builder's Signature. Date 12th Mars 1926

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 Electric Installation of this vessel has been fitted in accordance with the Society's Rules, and to approved wiring plan with the exception of the amendment to the size of the main cables, the original size of cable being retained as per Secretary's letter of 12th January 1926. The material and workmanship is satisfactory and the installation is eligible in my opinion to be classed and the vessel to have the notation in the Register Book of "Electric Light" also "Wireless")

It is submitted that this vessel is eligible for THE HULL, Elec. Light.

M. W. ...
 17/3/26

Total Capacity of Generators 279 Kilowatts.

The amount of Fee ... £ 1260 : 13-3 1926
 Travelling Expenses (if any) £ 85.00 : 4 1926

R. Kendall
 Surveyor to Lloyd's Register of Shipping.

Committee's Minute FBI 19 MAR 1926

Assigned Elec Light

1m, 126.—Transfer. (The Signatories are requested not to write on or below the space for Committee's Minute.)