

REPORT ON ELECTRICAL EQUIPMENT.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

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Date of writing Report 17th Nov 1949 When handed in at Local Office 19 Port of *hankow*No. in Survey held at *St. Nazaire* Date, First Survey 27/10/48 Last Survey 15/3/1949
Reg. Book. (No. of Visits 54)95273 on the S.S. "ZANGUEZOUR" Tons { Gross 10448
Net 6301Built at *Portland Oregon* By whom built *Kaiser Co. Inc.* Yard No. *✓* When built *1944*Owners *French Government* Port belonging to *Haïre*Installation fitted by *Presumed by Builders* When fitted *1944*Is vessel equipped for carrying Petroleum in bulk *Yes* Is vessel equipped with D.F. *Yes* E.S.D. *Yes* Gy.C. *Yes* Sub.Sig. *no* Radar *no*Plans, have they been submitted and approved *✓* System of Distribution *3 phase 3 wire* Voltage of Lighting *115*Heating *220* Power *440* D.C. or A.C., Lighting *AC + DC* Power *AC* If A.C. state frequency *60 ~*Prime Movers, has the governing been found as per Rule when full load is thrown on and off *Yes* Are turbine emergency governors fittedwith a trip switch *Yes* Generators, are they compound wound *D.C. Yes* and level compounded under working conditions *D.C. Yes*if not compound wound state distance between generators *—* and from switchboard *—* Are the generators arranged to runin parallel *AC Yes* are shunt field regulators provided *Yes* Is the compound winding connected to the negative or positive pole*negative* Have machines over 100 kw. been inspected by the Surveyors during manufacture and testing *no* Have certificates oftest for machines under 100 kw. been supplied *no* and the results found as per Rule *Operation on trials satisfactory*Position of Generators *Engine room port side*is the ventilation in way of generators satisfactory *Yes* are they clear of inflammable material and protected from mechanical injury anddamage from water, steam and oil *Yes* Switchboards, where are main switchboards placed *Engine room**starboard side aft*

are they in accessible positions, free from inflammable gases and acid fumes and protected from mechanical injury and damage from water,

steam and oil *Yes* what insulation is used for the panels *Dead front (micaite)* if of synthetic insulatingmaterial is it an Approved Type *—* if of semi-insulating material (slate or marble) are all conducting parts insulated therefrom asper Rule *—* Is the construction as per Rule, including locking of screws and nuts *Yes* Description of Main Switchgearfor each generator and arrangement of equaliser switches *A.C. generators: 3-pole linked C.B's with o/c trip in**each pole & reverse power relay also 3-pole linked separating switch. D.C. generators:**double pole linked C.B's with o/c trip in each pole*and the switch and fuse gear (or circuit breakers) for each outgoing circuit *A.C. circuits: 3-pole linked C.B's with**thermal o/c trip in each pole. D.C. circuits: double-pole switches**with o/c trip in each pole*Are compartments containing switchboards composed of fire-resisting material or lined as per Rule *Yes* Instruments on main switchboard *14*ammeters *7* voltmeters *1* synchronising devices *—* For compound machines in parallel are the ammeters and reversed currentprotection devices connected on the pole opposite to the equaliser connection *—* Earth Testing, state means provided *Lamps**coupled to earth for both A.C. & D.C. earth fault indication*Switches, Circuit Breakers and Fuses, are they as per Rule *American* are the fuses an Approved Type *American*make of fuses *C.E.C.* are all fuses labelled *Yes* If circuit breakers are provided for the generators, at whatoverload do they operate *Set at 50%* and at what current do the reversed current protective devices operate *none fitted*Joint Boxes, Section Boards and Distribution Boards, is the construction as per Rule *American pattern*Cables, are they insulated and protected as per Rule *Ammerican standard* if otherwise than as per Rule are they of an Approved Type *—*state maximum fall of pressure between bus bars and any point under maximum load *< 6%* are the ends of all cables having a sectionalarea of 0.01 square inch and above provided with soldering sockets *Mechanical clamps* Are all paper insulated and varnished cambric insulatedcables sealed at the ends *Yes* Are all the cable runs in accessible positions, not exposed to drip or accumulation of water or oil,high temperatures or risk of mechanical damage *Yes* are any cables laid under machines or floorplates *Yes* if so, are theyadequately protected *Yes* Are cables in machinery spaces, galleys, laundries, etc., lead covered *Yes* or run in conduit *—*or of the "HR" type *—* State how the cables are supported or protected *L.C. & A. cables clipped to racks**or to surface in machinery spaces and run in conduit under fore-and-**aft gangway. L.C. & A. cables clipped to saddles or direct to surface**in accommodation spaces*Are all lead sheaths, armouring and conduits effectually bonded and earthed *Yes* Are all cables passing through decks and watertightbulkheads provided with deck tubes or watertight glands *Yes* where unarmoured cables pass through beams, etc., are the holeseffectively bushed *Yes* Refrigerated chambers, are the cables and fittings as per Rule *Yes*

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Alternative Lighting, are the groups of lights in the engine and boiler rooms arranged as per Rule Yes Emergency Supply, state position Yes
 Navigation Lamps, are they separately wired Yes controlled by separate double pole switches and fuses Yes Are the switches and fuses in a position accessible only to the officers on watch Yes is an automatic indicator fitted Yes Is an alternative supply provided Yes
 Secondary Batteries, are they constructed and fitted as per Rule Yes, are they adequately ventilated Yes
 state battery capacity in ampere hours Yes
 Fittings, are all fittings on weather decks, in stokeholds and engine rooms and wherever exposed to drip or condensed moisture, weatherproof Yes
 Are any fittings installed where readily combustible materials or inflammable or explosive dust or gases are likely to be present Yes
 if so, how are they protected Yes As anti-spill flameproof fittings installed in bridge forward
 and where are the controlling switches fitted on access space above Are all fittings suitably ventilated Yes
 Searchlight Lamps, No. of One, whether fixed or portable Portable, are they of the carbon arc or of the filament type Incandescent
 Heating and Cooking, is the general construction as per Rule Yes, are the frames effectually earthed Yes, are heaters in the accommodation of the convection type None Motors, are all motors constructed and installed as per Rule Yes and placed in well-ventilated compartments in which inflammable gases cannot accumulate and protected from damage from water, steam and oil Remotely
 Are motors coupled to oil fuel transfer and pressure pumps capable of being stopped from a position accessible in the event of fire in the pump compartment Yes Have motors of 100 BHP and over been inspected by the Surveyors during manufacture and testing Yes
 Have certificates of test for motors under 100 BHP intended for essential sea services been supplied and the results found as per Rule Yes
 Control Gear and Resistances, are they constructed and fitted as per Rule Yes Lightning Conductors, where required are they fitted as per Rule Yes
 Ships carrying Oil having a Flash Point less than 150° F. Have all the special requirements of the Rules for such ships been complied with Yes are all fuses of an Approved Cartridge Type G.E.C. make of fuse American G.E.C. Are the fittings for pump rooms, 'tween deck spaces, etc., in accordance with the special requirements for such ships Yes Are the cables lead covered as per Rule Yes
 E.S.D., if fitted state maker Tachometer Location of transmitter E.R.D.B. Tank and receiver E.R.D.B. Tank
 Spare Gear, if the vessel is for open sea service have spares been provided as per Rule and suitably stored in dry situations Yes
 Insulation Tests, has the insulation resistance of all circuits and apparatus been tested and found satisfactory Yes

PARTICULARS OF GENERATING PLANT.

DESCRIPTION OF GENERATOR.	No. of	MAKER.	RATED AT				PRIME MOVER.	
			Kilowatts per Generator.	Volts.	Ampères.	Revs. per Min.	TYPE.	MAKER.
MAIN (A.C.)	2	G.E.C.	400	450	642	1200	Turbine	G.E.C.
(D.C.)	2	Do	75	110	682	1200		
EMERGENCY ROTARY TRANSFORMER	1	G.E.C.	450	450	720	900	Direct	G.E.C.

GENERATOR CABLES.

DESCRIPTION.	KILOWATTS.	CONDUCTORS.		MAXIMUM CURRENT IN AMPERES.		APPROX. LENGTH (lead plus return feet).	INSULATION.	PROTECTIVE COVERING.
		No. in Parallel per Pole.	Sectional Area or No. and Dia. of Strands.	In the Circuit.	Rule.			
MAIN GENERATORS (A.C.)	400	1	(Circ. mils.) 1,000,000	642	725		V.C.	L.C. & A.
" " EQUALIZER (D.C.)	75	1	1,000,000	682	725		Do	Do
EMERGENCY GENERATOR (A.C.)	75	1	1,06,000	120	150		Do	Do
ROTARY TRANSFORMER: MOTOR								
" " GENERATOR								

MAIN DISTRIBUTION CABLES (to Section Boards, Distribution Fuse Boards, etc.).

DESCRIPTION.								
Machine Shop Power S.B. (440V)	1	10,400	9.3	25		V.C.	L.C. & A.	
Salting (440V. main to Transformer)	1	66,400	20	82		Do	Do	
" (220V. main from Transformer)	1	300,000	105	234		Do	Do	
Shore Connection (440V)	1	600,000		466		Do	Do	
Transformer 440V. Imp. Bus to 11KV	1	66,400	18	82		Do	Do	
Lighting Transformer								
Main from Transformer to Emergency Switchboard	1	450,000		208		Do	Do	
Interconnector A.C. Bus to Machinery S.B.	1	16,000		34		Do	Do	

LIGHTING, HEATING, WIRELESS, NAVIGATION LIGHTS, ETC., CABLES.

DESCRIPTION.	No. in Parallel per Pole.	CONDUCTORS. Sectional Area or No. and Dia. of Strands.	MAXIMUM CURRENT IN AMPERES.		APPROX. LENGTH (lead plus return feet).	INSULATION.	PROTECTIVE COVERING.
			In the Circuit.	Rule.			
Wireless	1	33,100	15	75		V.C.	L.C. & A.
Navigation	1	10,400	15	37		Do	Do
Mastering & Instruments	1	66,400	20	99		Do	Do
Pump S.B. & Bore S.B. Ltg.	1	33,100	20	75		Do	Do
Upper Deck Ltg.	1	66,400	25	99		Do	Do
Engine Room Ltg.	1	66,400	15	99		Do	Do
Boiler Room Ltg.	1	26,300	12	55		Do	Do
Cubicle Heating	1	6,530	3.4	20		Do	Do
Propulsion Motor Heating	1	6,530	13	20		Do	Do
Propulsion Generator Heating	1	6,530	13	20		Do	Do
Engine Room Imp. Ltg.	1	10,400	10	37		Do	Do
Upper Deck Aux. Ltg.	1	4,100	4	12		Do	Do
Imp. Radio & Syro. Supply	1	26,300	15	55		Do	Do
Long Canal S' Light (Addnl.)	1	22 mm ²		58		Do	Do

MOTOR CABLES.

ALL IMPORTANT MOTORS TO BE ENUMERATED.	No.	B.H.P.							
20.000 Vent Fans	4	2	1	6,530	3.1	20		V.C.	L.C. & A.
Air Compressor	1	5	1	6,530	7.2	20		Do	Do
Running Gear (Turbine)	1	3	1	6,530	4.5	20		Do	Do
Brake Pumps	2	10	1	10,400	13.7	25		Do	Do
Circulating Pump	1	125	1	300,000	160	279		Do	Do
Turning Gear (Motor)	1	5	1	6,530	7.2	20		Do	Do
Cooling Fan (Motor)	1	15	1	16,500	21	41		Do	Do
Lub. oil pumps	2	5	1	6,530	7.2	20		Do	Do
Lub. oil separator	1	2	1	6,530	3.1	20		Do	Do
Fire & Brake Pumps	2	50	1	66,400	60.5	99		Do	Do
Turning Gear Motors	2	20	1	26,300	26	55		Do	Do
Condensate Pumps	2	25	1	26,300	32	55		Do	Do
Aux. Circ. Pump	1	30	1	33,100	39	65		Do	Do
Aux. Condensate Pump	1	15	1	16,500	19	41		Do	Do
Fire oil Service Pumps	2	7.5	1	6,530	10	20		Do	Do
Forward Draft Fans	3	50	1	106,000	63.29	134		Do	Do
Evap. Feed Pump	1	1	1	6,530	1.7	20		Do	Do
Access. Vent Fans	2	2	1	6,530	3.1	20		Do	Do
Fresh Water Pumps	2	2	1	6,530	3.1	20		Do	Do
Expig. Compressor	1	7.5	1	6,530	10	20		Do	Do
Expig. Circ. Pump	1	1	1	6,530	1.7	20		Do	Do
S.W. Service Pump	1	7.5	1	6,530	10	20		Do	Do
Sanitary Pump	1	7.5	1	6,530	10	20		Do	Do
Drinking Water Pumps	2	15	1	16,500	19	41		Do	Do
Cargo Pumps	3	200	1	450,000	243	367		Do	Do
Stripping Pumps	2	50	1	66,400	63	99		Do	Do
F.O. Transp. Pumps	2	20	1	16,500	26	41		Do	Do
Refig. Comp. (Addnl.)	1	7.5	1	8 mm ²	10	42.5		Do	Do
Access. Vent. Fans (Addnl.)	2	5	1	3 mm ²	7.2	18		Do	Do



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The Electrical Equipment is installed in accordance with the approved plans and the requirements of the Rules.

All Insulated Conductors are guaranteed to have been tested at the maker's works as specified in the Rules.

The foregoing is a correct description.

Electrical Contractors.

Date

COMPASSES.

Have the compasses been adjusted under working conditions.

Builder's Signature.

Date

Have the foregoing descriptions and schedules been verified and found correct. *Yes*

Is this installation a duplicate of a previous case. *Yes* If so, state name of vessel. *"EL MORRO"*

Plans. Are approved plans forwarded herewith. *No* If not, state date of approval. *See Special Plans for T2 Tankers*

Certificates. Are certificates of test for motors engaged on essential sea services and generators forwarded herewith. *No*

General Remarks. (State quality of workmanship, whether insulation tests, etc., have been made, opinions as to class, etc.) *The electrical equipment of this vessel is understood to have been constructed and installed under the supervision of the American Bureau of Shipping and in conformity with the Rules of the American Institute of Electrical Engineers and of the United States Coast Guard. The particulars reported have been derived from diagrams on board and from plans of previous similar installations and have been verified as far as possible by examination. The following modifications have been effected to achieve compliance with the Rules:- Existing lighting fittings in bridge tweendeck space replaced by flameproof fittings and the controlling switches removed to accommodation space above. The existing socket outlets in this space removed. Switch controlling forward pump room lighting removed to position in forecabin. Switches and push buttons controlling cargo and stripping pump motors removed to position on boat deck aft. Navigation light circuit rewired and alternative supply provided. Installation examined and found on place in good condition. On completion satisfactory sea trials were witnessed. The electrical installation of this vessel although not fully in accordance with the Society's Rules could in my opinion be considered eligible for a classed vessel intended to carry oil having a flash point less than 150°F.*

Total Capacity of Generators *875* Kilowatts.

The amount of Fee ... £	:	:	When applied for,
See Rpt-8	:	:	19
			When received,
Travelling Expenses (if any) £	:	:	19

Committee's Minute

FRI 6 MAY 1940

Assigned

See minute on Rals

Notes sub 29/4/49

G. Amison - J. Hobbs
Surveyor to Lloyd's Register of Shipping.