

# REPORT ON ELECTRICAL EQUIPMENT.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

22 JUN 1945

Received at London Office.....

Date of writing Report... 9.6.49... When handed in at Local Office... 19... Port of... LIVERPOOL.

No. in Survey held at... BIRKENHEAD... Date, First Survey... 12/4... Last Survey... 576/19 49  
Reg. Book. (Number of Visits.....)

95713 on the... T.E.V. "THAUMASTUS" Tons { Gross... 10670  
Net... 6315

Built at... PORTLAND. OR. By whom built... KAISER CO. INC. Yard No. - When built... 1945

Owners... ANGLO-SAXON PETROLEUM CO. LTD. Port belonging to... LONDON.

Electrical Installation fitted by... PRESUMED BY BUILDERS. Contract No. - When fitted... 1945

Is vessel fitted for carrying Petroleum in bulk... YES Is vessel equipped with D.F. YES E.S.D. YES Gy.C. YES Sub.Sig. NO

Have plans been submitted and approved... Typical plans of 12 Tankers approved System of Distribution... POWER... 3pl. 3.6v  
LIGHTING MAINS - 3pl. 2.4v  
CIRCUITS - Single ph. 240v Voltage of supply for Lighting... 120 A.C.

Heating... 220 AC Power... 440 AC Direct or Alternating Current, Lighting... AC Power... AC If Alternating Current state periodicity... 60N Prime Movers,

has the governing been tested and found as per Rule when full load is suddenly thrown on and off... YES Are turbine emergency governors fitted with a trip switch as per Rule... YES

Generators, are they compound wound... YES, are they level compounded under working conditions... YES, if not compound wound state distance between generators... and from switchboard... Where more than one generator is fitted are they arranged to run in parallel... NO, 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 of test for machines under 100 kw. been supplied... NO and the results found as per rule... Are the lubricating arrangements and the construction of the generators as per rule... YES

Position of Generators... In main engine room. is the ventilation in way of generators satisfactory... YES, are they clear of inflammable material... YES, if situated near unprotected combustible material state distance from same horizontally... and vertically... are the generators protected from mechanical injury and damage from water, steam and oil... YES, are the bedplates and frames earthed... YES and the prime movers and generators in metallic contact... YES

Switchboards, where are main switchboards placed... In main engine room.

are they in accessible positions, free from inflammable gases and acid fumes... YES, are they protected from mechanical injury and damage from water, steam and oil... YES, if situated near unprotected combustible material state distance from same horizontally... and vertically... what insulation material is used for the panels... Dead-front board, insulating material applied to be American, if of synthetic insulating material is it an Approved Type... YES, if of semi-insulating material (slate or marble) are all conducting parts insulated therefrom as per Rule... Is the frame effectually earthed... YES

Is the construction as per Rule... YES, including accessibility of parts... YES, absence of fuses on the back of the board... YES, individual fuses to pilot and earth lamps, voltmeters, etc... YES, locking of screws and nuts... YES, labelling of apparatus and fuses... YES, fuses on the "dead" side of switches... YES

Description of Main Switchgear for each generator and arrangement of equaliser switches... Triple-pole circuit breakers for A.C. Generators. Double-pole circuit breakers for D.C. Generators.

and for each outgoing circuit... Triple or double-pole circuit breakers.

Are compartments containing switchboards composed of fire-resisting material or lined as per Rule... YES Instruments on main switchboard... 14

ammeters... 5 voltmeters... 1 synchronising devices. For compound machines in parallel is the ammeter connected on the pole opposite to the equaliser connection... Earth Testing, state means provided... Coast indicating lamps on A.C. & D.C. Systems

Switches, Circuit Breakers and Fuses, are they as per Rule... YES, are the fuses an approved type... YES, are all fuses labelled as per Rule... YES

If circuit breakers are provided for the generators, at what overload current did they open when tested... hot tests, are the reversed current protection devices connected on the pole opposite to the equaliser connection... have they been tested under working conditions, and at what current did they operate... YES

Joint Boxes, Section Boards and Distribution Boards, is the construction and position as per Rule... YES

Cables, are they insulated and protected as per the appropriate Tables of the Rules... YES, if otherwise than as per Rule are they of an approved type... YES, state maximum fall of pressure between bus bars and any point under maximum load... are the ends of all cables having a sectional area of 0.04 square inch and above provided with soldering sockets... mechanical clamps Are paper wrapped and varnished cambric insulated cables sealed at the ends... YES

\* Generating set consist of 400 K.V.A. Alternator, 75 Kw. Exciter (Shunt wound) and 55 Kw. Generator (Comp. wound) all mounted on common bedplate and driven by steam turbine.

with insulating compound — or waterproof insulating tape 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 cables laid under machines or floorplates Yes, if so, are they adequately protected. Yes. Are cables in machinery spaces, galleys, laundries, etc., lead covered. Yes or run in conduit. — State how the cables are supported and protected. All cables L.C.A. On deck installed under gangway in conduits: in machinery spaces, clipped to saddles, 15 yds, plate or direct to structure: in accommodation clipped to saddles or direct to structure.

Are all lead sheaths, armoring and conduits effectually bonded and earthed. Yes. Refrigerated chambers, are the cables and fittings as per Rule. —

Are all cables passing through decks and watertight bulkheads provided with deck tubes or watertight glands. Yes, where unarmoured cables pass through beams, etc., are the holes effectually bushed. — and with what material. without favour material. Alternative Lighting, are the groups of lights in the engine and boiler rooms arranged as per Rule. Yes. Emergency Supply, state position. Emergency generator and switchboard in compartment in poop and method of control. Emergency generator and switchboard in compartment in poop and method of control. Emergency generator and switchboard in compartment in poop and method of control. Emergency generator and switchboard in compartment in poop and method of control.

Navigation Lamps, are they separately wired. Yes controlled by separate double pole switches. Yes 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. Secondary Batteries, are they constructed and fitted as per Rule. Yes, are they adequately ventilated. Yes what is the battery capacity in ampere hours. 200 a. h.

Fittings, are all fittings on weather decks, in stokeholds and engine rooms and wherever exposed to drip or condensed moisture, weatherproof. Yes. Are 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. in flameproof fittings.

and where are the controlling switches fitted. in accommodation, outside spaces., are all fittings suitably ventilated. Yes, are all fittings and accessories constructed and installed as per Rule. Yes. Searchlight Lamps, No. of One, whether fixed or portable. portable, are their fittings as per Rule. Yes. 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 free from damage from water, steam and oil. Yes, if situated near unprotected combustible material state minimum distance from same horizontally. — and vertically. — Are motors coupled to oil fuel transfer and unit 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. No. Have certificates of test for motors under 100 BHP intended for essential services been supplied and the results found as per Rule. No. Control Gear and Resistances, are they constructed and fitted as per Rule. Yes. Lightning Conductors, where required are they fitted as per Rule. — 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 the cartridge type. Yes are they of an approved type. Ameyian Cartridge. 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. Spare Gear, if the vessel is for open sea service have spares been provided as per Rule. Yes, are they 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.	RATED AT				DRIVEN BY	WHERE DRIVEN BY AN INTERNAL COMBUSTION ENGINE.	
	No. of Poles	Kilowatts	Volts	Ampères		Fuel Used	Flash Point of Fuel
MAIN GENERATOR	2	400 (500 KVA)	450	642	Steam Turbine		
	2	75	110	682			
	2	55	120	458			
EMERGENCY GENERATOR	1	75 (92.7 KVA)	450	120.5	Oil Engine	Diesel Oil	Above 150° F.

GENERATOR CABLES.

DESCRIPTION.	KILOWATTS.	CONDUCTORS.		MAXIMUM CURRENT IN AMPERES.	APPROX. LENGTH (Load wire unless stated).	INSULATED WITH.	HOW PROTECTED.
		No. in Parallel Per Pole.	Sectional Area or No. and Dia. of Strands, Sq. Ins. or sq. mm.				
MAIN GENERATOR	400	1	1,000,000	642	725	V.C.	L.C.A.
"	75	1	1,000,000	682	725	"	"
"	55	1	750,000	458	592	"	"
EMERGENCY GENERATOR	75	1	106,000	120.5	150	"	"

MAIN DISTRIBUTION CABLES.

DESCRIPTION.	CONDUCTORS.		MAXIMUM CURRENT IN AMPERES.		APPROX. LENGTH (Load wire unless stated).	INSULATED WITH.	HOW PROTECTED.
	No. in Parallel Per Pole.	Sectional Area or No. and Dia. of Strands, Sq. Ins. or sq. mm.	In the Circuit.	At the Receiving End.			
AUX. SWITCHBOARDS AND SECTION BOARDS ...							
Machine Shop, Power Panel (440 V.)	1	10,400	9.3	25	120	V.C.	L.C.A.
Galley Power (440 V. Main to 15 KVA Transformer)	1	66,400		83	45	"	"
do. (220 Volt Main from Transformer)	1	300,000	185	234	150	"	"
Stove connection.	1	650,000		392	45	"	"
Main from 440 V. En. Bus to 15 KVA. 119 Transformer	1	66,400		83	150	"	"
do. 119 Transformer to En. Switch 120 V.	1	450,000		308	15	"	"
Substation A.C. En. Bus to Main Bus	1	16,500		34	80	"	"

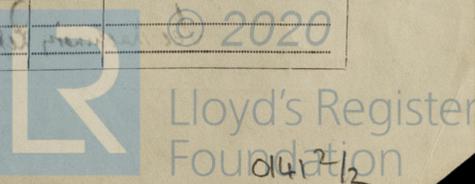
LIGHTING AND HEATING, ETC., CABLES.

WIRELESS	1	33,100	15	55	300	V.C.	L.C.A.
NAVIGATION LIGHTS	1	10,400	1.5	25	250	"	"
LIGHTING AND HEATING							
Kitchen - Incandescent Lighting.	1	66,400	30	83	400	"	"
Refr. Deck Room.	1	33,100	20	55	70	"	"
Upper Deck	1	66,400	25	83	100	"	"
Engine Room	1	66,400	15	83	40	"	"
Boiler Room	1	26,300	12	47	80	"	"
Cubicle Heater	1	6,530	3.4	18	75	"	"
Main Cabin	1	6,530	13	18	24	"	"
Gen. Room	1	6,530	13	18	30	"	"
Battery Charge Gen. Room.	1	4,100	5	15	60	"	"
Gen. Room 119 AC. En. Bus	1	4,100	4	15	120	"	"
Eng. " " 115 V. D.C. Bus.	1	10,400	15	25	100	"	"

MOTOR CABLES.

ALL IMPORTANT MOTORS TO BE ENUMERATED.	No.	B.H.P.	CONDUCTORS.		MAXIMUM CURRENT IN AMPERES.	APPROX. LENGTH (Load wire unless stated).	INSULATED WITH.	HOW PROTECTED.	
			No. in Parallel Per Pole.	Sectional Area or No. and Dia. of Strands, Sq. Ins. or sq. mm.					
Engine Room Vent. Fan	4	2	1	6,530	3.19	18	60	V.C.	L.C.A.
Air Compressor	1	5	1	6,530	6.97	18	30	"	"
Vacuum Suction Gear	1	2	1	6,530	2.91	18	20	"	"
Eng. Room Bilge Pump	2	10	1	10,400	13.7	25	40	"	"
Main Condenser Circulating Pump	1	125	1	300,000	172	234	60	"	"
Main Shaft Steering Gear	1	5	1	6,530	8.5	18	100	"	"
Main Propulsion Motor Fan	1	15	1	16,500	21.3	34	75	"	"
Lub. Oil Service Pump.	2	5	1	6,530	7.3	18	60	"	"
Separator	1	2	1	6,530	3.19	18	120	"	"
Fine Bubble Wash Pump	2	50	1	66,400	60.5	83	60	"	"
Steering Gear Motor	2	30	1	33,100	43.5	55	165	"	"
Main Condensate Pump	2	25	1	26,300	32	47	50	"	"
Acc.	1	15	1	16,500	19	34	75	"	"
" Circulating	1	30	1	33,100	38.9	55	90	"	"
Cooler	1	10	1	10,400	13	25	60	"	"
Fuel Oil Service Pump.	2	7.5	1	6,530	10	18	80	"	"
Forward Orangle Fan	3	50	1	66,400	63	83	80	"	"
Compressor Fuel Pump	1	1	1	6,530	1.56	18	90	"	"
Accommodation Vent Fan	2	1.25	1	6,530	2.2	18	90	"	"
Fresh Water Pumps	2	2	1	6,530	3.08	18	125	"	"
Refining Compressor Motor	1	7.5	1	6,530	9.8	18	150	"	"
" Circulating Pump	1	1	1	6,530	1.5	18	125	"	"
Sanitary Pump	1	7.5	1	6,530	10.3	18	125	"	"
Drinking Water Pumps	2	1	1	6,530	1.56	18	120	"	"
Gauge Pumps	3	200	1	450,000	243	308	60	"	"
Shipping Pumps	2	50	1	66,400	63	83	45	"	"
Fuel Oil Transfer Pumps	2	20	1	16,500	25	34	50	"	"

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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 Engineers. Date

COMPASSES.

Minimum distance between electric generators or motors and standard compass 40 ft.

Minimum distance between electric generators or motors and steering compass 40 ft.

The nearest cables to the compasses are as follows:—

A cable carrying 1.5 Ampères 10 feet from standard compass 7 feet from steering compass.

A cable carrying 0.2 Ampères ~~10~~ feet from standard compass ~~10~~ 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 degrees on course in the case of the standard compass, and degrees on course in the case of the steering compass.

Builder's Signature. Date

Is this installation a duplicate of a previous case. Generally similar to other T. Tanker. If so, state name of vessel 'Lobalton Strait' etc.

Plans. Are approved plans forwarded herewith. If not, state date of approval.

Certificates. Are certificates of test for motors engaged on essential services and generators forwarded herewith.

General Remarks (State quality of workmanship, whether insulation tests, etc., have been made, opinions as to class, etc.) The Electrical

Equipment of this vessel appears to have been installed in accordance with American Practice and the typical approved plans. The details of the report were obtained from these plans and personal observation. A number of repairs and alterations have been effected, including the installation of flameproof fittings in certain deck spaces in lieu of non-flameproof type originally fitted, and the removal of remote control equipment for cargo pumps etc from position near pump room skylight to new position in poop, also pilot light circuits of a number of motor in machinery spaces originally connected to 120 Volt D.C. supply have been altered to comply with <sup>1904</sup> Rules, and now connected to a 24 Volt D.C. supply. The generator, motor, control gear, transformer, switch gear, cables, etc. have been examined, tested, necessary repairs effected, insulation test carried out and found satisfactory.

The equipment appears to be in good and efficient condition and is eligible to be accepted in accordance with the Society's Rules, it is, in my opinion, eligible to be accepted for Classification.

Total Capacity of Generators 985 Kilowatts  
 (2 at 400, 2 at 55 and 1 at 75 Kw)  
 (2-75 Kw Exciter are not included in total)

The amount of Fee ... £ 30 : 0 : 0  
 Travelling Expenses (if any) £ : :  
 When applied for, 1949  
 When received, 1949

Noted *ent* #171+9

H. H. Officer.  
 Surveyor to Lloyd's Register of Shipping.

LIVERPOOL 21 JUN 1949

Assigned See Machinery Report Minute

5m. 4.50.—Transfer. (MADE AND PRINTED IN ENGLAND.)  
 (The Surveyors are requested not to write on or below the space for Committee's Minute.)

