

REPORT ON ELECTRICAL EQUIPMENT.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

Date of writing Report. 27-11-1947 When handed in at Local Office. 19..... Port of Liverpool

No. in Survey held at Birkenhead Date, First Survey..... Last Survey..... 19.....
Reg. Book. 37910 on the s.s. "TRESUS" ex "LAUREL HILL."

Tons Gross 10669 Net 6317

Built at PORTLAND, OR. By whom built KAISER CO. INC. Yard No. - When built 1944

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

Electrical Installation fitted by PRESUMED FITTED BY BUILDERS Contract No. - When fitted 1944

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. -

Have plans been submitted and approved. Typical plans of System of Distribution POWER - 3 phase 3 wire LIGHTING MAIN - 3 ph. 3 wire Voltage of supply for Lighting 120 AC

Heating 220 AC Power 440 AC Direct or Alternating Current, Lighting A.C. 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. Separate & below, are they level compounded under working conditions. -

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. - Have certificates of test for machines under 100 kw. been supplied. - 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 on steering platform. 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 on steering platform.

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, insulation material. If of synthetic insulating material is it an Approved Type. - 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. 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. D.P. Circuit breakers for D.C. Generators

and for each outgoing circuit. Triple pole 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. Earth indicating lamps on A.C. & D.C. Systems.

Switches, Circuit Breakers and Fuses, are they as per Rule. American Type, are the fuses an approved type. American Type, 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. 100% 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. -

Joint Boxes, Section Boards and Distribution Boards, is the construction and position as per Rule. All American Type

Cables, are they insulated and protected as per the appropriate Tables of the Rules. American 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. - are the ends of all cables having a sectional area of 0.04 square inch and above provided with soldering sockets. No, Are paper insulated and varnished cambric insulated cables sealed at the ends.

* Generating sets consist of Alternator 75 kw. Steam boiler Exciter and 55 kw Generator, Comp. Board 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, ways, or direct to structure or on cleats; in accommodation etc 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 effectively bushed All cables are armoured but holes are treated with non-ferrous 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 switch board in compartment on boat deck aft. Method of control Generator starts automatically on failure of main supply. 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 Approx 200 amp hrs.

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 flameproof fittings. (boiler room lines deck space). and where are the controlling switches fitted In accommodation alleyway on deck above, are all fittings suitably ventilated Yes are all fittings and accessories constructed and installed as per Rule Yes. Searchlight Lamps, No. of 2, 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 Low. 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 Yes. 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.	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	400 (300KW)	450	642	1200	Steam Turbines		
	* 2	75	110	682				
	2	55	120	458				
EMERGENCY ...	1	75 (92 KW)	450	120.5	900	Oil Engine	Diesel Oil Above 150°F.	
ROTARY TRANSFORMER								

GENERATOR CABLES.

DESCRIPTION.	KILOWATTS.	CONDUCTORS.		MAXIMUM CURRENT IN AMPERES.		APPROX. LENGTH (lead plus return feet).	INSULATED WITH.	HOW PROTECTED.
		No. in Parallel Per Pole.	Sectional Area or No. and Dia. of Strands.	In the Circuit.	Rule.			
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	150		"	"
ROTARY TRANSFORMER MOTOR GENERATOR ...								

* EXCITERS FOR PROPULSION UNITS

AMERICAN BUREAU OF SHIPPING RATINGS

MAIN DISTRIBUTION CABLES.

DESCRIPTION.	CONDUCTORS.		MAXIMUM CURRENT IN AMPERES.		APPROX. LENGTH (lead plus return feet).	INSULATED WITH.	HOW PROTECTED.
	No. in Parallel Per Pole.	Sectional Area or No. and Dia. of Strands.	In the Circuit.	Rule.			
AUX. SWITCHBOARDS AND SECTION BOARDS ...		CIRC. MILS.					
MACHINESHOP POWER PANEL (440V) P11.	1	104,000	9.3	25	120	V.C.	L.C.A.
GALLEY POWER (440V. MAINS TO 15KVIA TRANSFORMER) 1	1	66,400	83	45	"	"	"
" " PANEL (220V. MAINS FROM TRANSFORMER) 1	1	300,000	185	234	150	"	"
SHORE CONNECTION P52	1	650,000	-	392	45	"	"
MAINS FROM 440V. EMERG. BUS TO 15KVIA LIGHTING TRANSFORMER 1	1	66,400	83	150	"	"	"
" " LIGHTING TRANS. TO EM. SWITCHBOARD 120V. 1	1	450,000	308	15	"	"	"
INTERCONNECTOR A.C. EMERGENCY BUS TO MACHINESHOP SET. BOARD (120V) 1	1	16,500	-	344	80	"	"

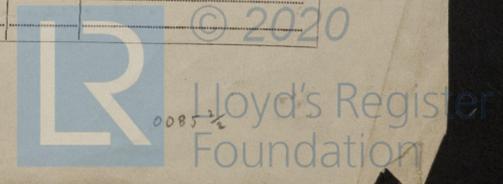
LIGHTING AND HEATING, ETC., CABLES.

DESCRIPTION.	No.	Sectional Area or No. and Dia. of Strands.	In the Circuit.	Rule.	APPROX. LENGTH (lead plus return feet).	INSULATED WITH.	HOW PROTECTED.
WIRELESS ...	1	33,100	15	55	300	V.C.	L.C.A.
NAVIGATION LIGHTS ...	1	10,400	25	25	250	"	"
LIGHTING AND HEATING MASHIP AND FORECASTLE L3	1	66,400	30	83	400	"	"
POOP & BOAT DECK ACCOMMODATION L4	1	33,100	20	55	70	"	"
UPPER DECK ACCOMMODATION L5	1	66,400	25	83	100	"	"
ENGINE ROOM LIGHTING L6	1	66,400	15	83	40	"	"
BOILER ROOM " L7	1	26,300	12	47	80	"	"
2300 Volt. CUBICLE HEATERS L9	1	6,530	3.4	18	75	"	"
MAIN MOTOR HEATERS L11	1	6,530	13	18	24	"	"
BATTERY CHARGER GEN. ROOM L12	1	6,530	13	18	30	"	"
GENERATOR ROOM Ltg FROM 120V. A.C. EMERG. BUS L19	1	4,100	4	15	120	"	"
ENGINE ROOM EMERGENCY Ltg FROM 115V. D.C. BATTERIES 1	1	10,400	15	25	100	"	"

MOTOR CABLES.

ALL IMPORTANT MOTORS TO BE ENUMERATED.	No.	B.H.P.	Sectional Area or No. and Dia. of Strands.	In the Circuit.	Rule.	APPROX. LENGTH (lead plus return feet).	INSULATED WITH.	HOW PROTECTED.	
ENGINE ROOM VENT FANS P34/35	4	2	1	6,530	3.19	18	60	V.C.	L.C.A.
AIR COMPRESSOR P140	1	5	1	6,530	7.2	18	30	"	"
TURBINE TURNING GEAR. P48	1	3	1	6,530	4.5	18	20	"	"
ENG. RM BILGE PUMPS P13/14	2	10	1	10,400	13.7	25	110	"	"
MAIN CONDENSER CIRC. PUMP P6	1	125	1	300,000	160	234	60	"	"
MAIN SHAFT TURNING GEAR P	1	5	1	6,530	7.2	18	100	"	"
MAIN PROPULSION MOTOR FAN P27	1	15	1	16,500	21	34	75	"	"
LUB. OIL SERVICE PUMPS P29/31	2	5	1	6,530	7.2	18	60	"	"
LUB. OIL SEPARATOR P22	1	2	1	6,530	3.1	18	120	"	"
FILE AND BUTTERWORTH PUMPS P7/8	2	50	1	66,400	60.5	83	60	"	"
SPEEDING GEAR MOTORS P9/10	2	35	1	33,100	44.5	55	165	"	"
MAIN CONDENSATE PUMPS P14/3	2	25	1	26,300	32	47	50	"	"
AUX. CIRCULATING PUMP P14	1	30	1	33,100	37.9	55	90	"	"
AUX. CONDENSATE PUMP P15	1	15	1	16,500	19	34	60	"	"
COOLER CIRCULATING PUMP	1	10	1	10,400	13.7	25	60	"	"
FUEL OIL CIRCULATING PUMP P19	1	7.5	1	6,530	10.5	18	45	"	"
FORCED DRAUGHT FANS P23/24/25	3	50	1	66,400	63.9	83	80	"	"
EVAPORATOR FEED PUMPS P26/27	2	1	1	6,530	1.7	18	90	"	"
ACCOMMODATION VENTILATORS P28/29	2	2	1	6,530	3.1	18	50	"	"
FRESH WATER PUMPS P31/32	2	2	1	6,530	3.1	18	90	"	"
REFRIG. COMPRESSORS P38	2	7.5	1	6,530	10.5	18	125	"	"
" CIRCULATING PUMP P38	1	1	1	6,530	1.7	18	150	"	"
SALT WATER SERVICE PUMP P41	1	7.5	1	6,530	10.5	18	150	"	"
SANITARY PUMP P42	1	7.5	1	6,530	10.5	18	125	"	"
DRINKING WATER PUMP P51	1	15	1	16,500	19.5	34	90	"	"
CARGO PUMPS P1/2/3	3	200	1	450,000	243	308	60	"	"
STRIPPING PUMPS P4/5	2	50	1	66,400	63	83	45	"	"
FUEL OIL TRANSFER PUMPS P16/17	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.....

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

The nearest cables to the compasses are as follows:—

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

A cable carrying Ampères feet from standard compass 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

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.

Builder's Signature. Date.....

Is this installation a duplicate of a previous case? *Garrett similar to other Standard T2 Tankers* If so, state name of vessel

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 with the typical plans of T2 Tankers. The details of this report were obtained from the typical plans & from personal observation. It was noted that all the lighting sub-circuits are controlled by single pole switches; single pole switches, portable connections and non-flameproof fittings installed in center cockpit live-deck space. It was recommended the wiring & fittings in the space be removed, the lighting fitting replaced by flameproof type & controlled by double pole switches outside space. This has been done. The navigation light circuits have also been altered to double pole control. Several circuits in accommodation have been raised and controlled by double pole switches. All motor, control gear, transformers, generator, switchboards, cables, etc. have been examined, insulation test carried out and a number of minor repairs effected. The installation appears to be in good & efficient condition & is in my opinion, eligible to be accepted for Classification.

Total Capacity of Generators *985* Kilowatts.
(22400, 2055, 1075)

The amount of Fee £ *30 : 0 : 0* When applied for, *2 JAN 1948*

Travelling Expenses (if any) £ : : When received, 19.....

A. Haffner
 Surveyor to Lloyd's Register of Shipping.

LICENCE CASE
 Committee's Minute *LIVERPOOL 6 JAN 1948*
 Assigned *See Minutes on Machinery Report.*

5m. 4. 3. Transfer. (MADE AND PRINTED IN ENGLAND.) (The Surveyors are requested not to write on or below the space for Committee's Minute.)

