

REPORT ON ELECTRICAL EQUIPMENT.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

Received at London Office.....

8-MAR 1949

Date of writing Report... 24-1-1949 When handed in at Local Office... 25/1/49 Port of... Liverpool

No. in Survey held at... Birkenhead Date, First Survey... Last Survey... 23-1-1949
Reg. Book. (Number of Visits.....)

55123 on the... S.S. 'CHISHOLM TRAIL' Tons { Gross 10660 Net 6322

Built at... Portland Or. By whom built... Kainer, Co. Inc. Yard No. - When built... 1945

Owners... British Tankers Co. Port belonging to... London.

Electrical Installation fitted by... Provided by Builder. 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... approved System of Distribution... Voltage of supply for Lighting... 120 AC

Heating... 220 AC Power... AC or Alternating Current, Lighting... AC Power... AC If Alternating Current state periodicity... 60 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... -

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, insulation material applied to American type

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... 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 breaker for A.C. Generators, Double pole circuit breaker 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... 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... Not tested

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... Yes

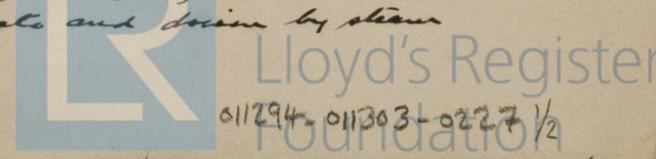
Cables, are they insulated and protected as per the appropriate Tables of the Rules... Cables, if otherwise than as per Rule are they of an approved type... -

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... Yes

Are paper insulated and varnished cambric insulated cables sealed at the ends... Yes

* Generating sets comprise 400 KVA Alternator, 75 Kw. Exciter (Shunt Wound) and 55 Kw. D.C. 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. - one deck installed under gangway in conduits; in machinery spaces clipped to saddles, bays, cleats, or direct to structure; in accommodation clipped to saddles or direct to structure.

Are all lead sheaths, armouring 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 armoured and holes bushed 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 method of control. Emergency generator disconnected with main control board through changeover switch. 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 amp hours.

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 flame proof fittings.

and where are the controlling switches fitted. in accommodation outside space, 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. Lighting 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. American Cartridge type. 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.	Ampères.	Revs. per Min.		Fuel Used.	Flash Point of Fuel.
MAIN ...	2	400 (500kVA)	450	642	Steam Turbines			
MAIN PROVISION EXCITERS	2	75	110	682				
	2	55	120	458				
EMERGENCY ...	1	75 (937kVA)	450	120.5	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. Sq. ins. or sq. mm.	In the Circuit.	Rule.			
MAIN GENERATOR ...	400	1	6,000,000	642	725	40	V.C.	L.C.A.
" " EQUALIZER ...	75	1	1,000,000	682	725	45	"	"
" " ...	55	1	750,000	458	592	45	"	"
EMERGENCY GENERATOR ...	75	1	1,060,000	120	150	30	"	"
ROTARY TRANSFORMER: MOTOR								
" " GENERATOR								

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. Sq. ins. or sq. mm.	In the Circuit.	Rule.			
AUX. SWITCHBOARDS AND SECTION BOARDS ...		C. kils		Any rating			
Machine Shop. Power Panel (440v. v.)	1	10,400	9.3	25	120	V.C.	L.C.A.
Galley Power. (440v. main & 15kVA transfer)	1	66,400		83	45	"	"
" (220v. main from transformer)	1	300,000	185	234	150	"	"
How Connection							
Main from 440v. Em. Bus & 15kVA (by transfer)	1	66,400		83	45	"	"
" " by transformer to Em. Switch 120v.	1	450,000		392	15	"	"
Submarine A.C. Em. Bus & Mainly Sect. Board	1	16,500		34	80	"	"

LIGHTING AND HEATING, ETC., CABLES.

WIRELESS ...	1	33100	15	35	300	V.C.	L.C.A.
NAVIGATION LIGHTS ...	1	10400	1.5	25	250	"	"
LIGHTING AND HEATING ...							
Messing. Forecastle Lighting	1	66400	30	83	400	"	"
Port/Starboard Deck Accommodation Lighting	1	33100	20	55	70	"	"
Upper Deck Lighting	1	66400	25	83	100	"	"
Engine Room	1	66400	15	83	40	"	"
Boiler Room	1	26300	12	47	80	"	"
Cabinale Machine	1	6530	3.4	18	75	"	"
Main Motor	1	6530	13	18	24	"	"
Generator	1	6530	13	18	30	"	"
Battery Charge Gen. Room	1	4100	5	15	60	"	"
Gen. Room Lighting from 120v. A.C. Em. Bus	1	4100	4	15	120	"	"
Eng. Room " " 115v. D.C. Bus.	1	10400	15	25	100	"	"

MOTOR CABLES.

ALL IMPORTANT MOTORS TO BE ENUMERATED.	No.	B.H.P.						
Engine Room Vent. Fans	4	2	1	6530	3.19	18	60	V.C. L.C.A.
Air Compressor	1	5	1	6530	7.2	18	30	"
Staircase Landing Fans	1	3	1	6530	4.5	18	20	"
Eng. Room Bilge Pump	2	10	1	10400	13.7	25	110	"
Main Lubricator Oil	1	125	1	300,000	158	234	60	"
Main Shaft Landing Fans	1	5	1	6530	8.5	18	100	"
Main Propulsion Motor Fan	1	15	1	16500	21	34	75	"
Sub. Oil Service Pump	2	5	1	6530	7.1	18	60	"
" Separator	1	2	1	6530	3.18	18	120	"
Two Ballast Water Pumps	2	50	1	66,400	63	83	60	"
Sliding Gear Motor	2	30	1	33100	39	55	165	"
Main Lubricator Pump	2	25	1	26300	32	47	50	"
Aux. Circulating	1	30	1	33100	39	55	90	"
" Condensate	1	15	1	16500	21	34	60	"
Boiler Circulating	1	10	1	10400	13.7	25	60	"
Free Oil	1	7.5	1	6530	10.5	18	45	"
Fixed Orignal Fan	3	50/20	1	66400	63/29	83	80	"
Exhaust Fan Pumps	2	1	1	6530	1.5	18	90	"
Accommodation Vent. Fans	2	2	1	6530	3.1	18	50	"
Shed Ball Pumps	2	2	1	6530	3	18	90	"
Rising Compressor	1	7.5	1	6530	10	18	125	"
" Circulating Pt.	1	1	1	6530	1.5	18	150	"
Sanitary Pump	1	7.5	1	6530	10.3	18	125	"
Drinking Water	2	1	1	6530	1.5	18	90/200	"
Barge Pumps	3	200	1	450,000	243	308	60	"
Shipping	2	50	1	66,400	63	83	45	"
Fuel Oil Tanks	2	20	1	16500	25	34	50	"
S.W. Service	1	10.5	1	6530	10.3	18	150	"

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~~ ^{the} ~~same~~ vessel? If so, state name of vessel Fr. Stearns, 'Argos' 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 this report were obtained from these plans and personal observation. A number of repairs & alterations have been effected including the installation of flameproof fittings in carbide acetylene space 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 location in poop. The generators, motor, control gear, transformer, switch gear, cables etc have been examined, tested, necessary repairs effected, insulation tests carried out and found satisfactory.

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

Noted 24/3/19

Total Capacity of Generators 985 Kilowatts.

(2 at 400kts, 2 at 55, and 1 at 75kts)
 (The 2 at 75kts Exciter are not included in total)

The amount of Fee ... £ 30 : 0 : 0

When applied for, 3 MAR 1919

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

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

LICENCE CASE

Committee's Minute LIVERPOOL - 7 MAR 1919

Assigned See Minutes or Machinery Report.

5m. 4. 19. — Transfer. (MADE AND PRINTED IN ENGLAND.)
 (The Surveyors are requested not to write on or below the space for Committee's Minutes.)

