

# REPORT ON ELECTRIC FITTINGS.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

29 JAN 1935

Received at London Office.....

Date of writing Report

19

When handed in at Local Office 26-1-35

19

Port of BelfastNo. in Survey held at BELFAST

Date, First Survey

Nov 13 1934

Last Survey

22 June1935

Reg. Book.

(Number of Visits.....)

88336 on the M. V. ACANUS

Tons

Gross 8000Net 4700Built at BELFAST

By whom built

WORKMAN CLARK & CO (1928) LTD

Yard No.

536When built 1935

Owners

ANGLO SAXON PETROLEUM CO LTD

Port belonging to

London.

Electric Light Installation fitted by

SUNDERLAND FORGE & ENG. CO LTD

Contract No.

536When fitted 1935

Is the Vessel fitted for carrying Petroleum in bulk

YES

System of Distribution

DOUBLE WIRE, DISTRIBUTION BOX

Pressure of supply for Lighting

110

volts, Heating

-

volts, Power

110

volts.

Direct or Alternating Current, Lighting

DIRECT

Power

DIRECT

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 YESGenerators, do they comply with the requirements regarding rating YES, are they compound wound YESare they over compounded 5 per cent. YES, if not compound wound state distance between each generatorWhere more than one generator is fitted are they arranged to run in parallel INDEPENDANT OPERATION, is an adjustable regulating resistance fitted in series with each shunt field YESAre 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 YESAre the lubricating arrangements of the generators as per Rule YES

Position of Generators

STARBOARD SIDE IN ENGINE ROOMis 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 YESare their axes of rotation fore and aft YESEarthing, are the bedplates 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

STARBOARD SIDE IN ENGINE ROOM AT FRAME NO 31If 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 YESare 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 YES, if semi-insulating material is used, are all conducting parts insulated from the slabwith mica or micanite or other non-hygroscopic insulating material, and the slab similarly insulated from its framework YESand 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 YESMain Switchgear, description of switchgear for each generator and each outgoing circuit, and arrangement of equalizer switches DOUBLE POLE SWITCHESAND FUSES FOR MAIN GENERATORS & DOUBLE POLE CHANGE-OVER SWITCHES FOR EACH OUTGOING CIRCUIT.

Instruments on main switchboard

TWO

ammeters

TWO

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 LAMP, SWITCHAND FUSE ON EACH POLE.THE 'EARTH' SWITCHES ARE 2WAY & OFF AND ARE LINKEDSwitches, Circuit Breakers and Fusible Cut-outs, do these comply with the requirements of the Rules YESJoint Boxes Section and Distribution Boards, is the construction, protection, insulation, material, and position of these as per rule YES



82111  
Cables: Single, twin, concentric, or multicore SINGLE 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 5.0 VOLTS  
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 —  
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 LEAD COVERED ARMoured & BRAIDED  
RUN IN GALV. WROUGHT IRON PIPE UNDER GANGWAY.  
If cables are run in wood casings, are the casings and caps secured by screws —, are the cap screws of brass —, are the cables run in separate grooves —. 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 NONE MADE  
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 unarmoured cables pass through beams and non-watertight partitions, are the holes efficiently bushed YES state the material of which the bushes are made LEAD  
Earthing Connections, state what earthing connections are fitted and their respective sectional areas —  
—, are their connections made as per Rule —  
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 —  
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 storerooms and engine rooms and wherever 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 —  
are any fittings placed in spaces where inflammable or explosive dust or gases are liable to be present, if so, how are they protected BULKHEAD ON  
EITHER SIDE OF PUMP ROOM ENTRANCE SPECIALLY RECESSED TO SUIT FITTING., how are the cables led OUTSIDE PUMP ROOM.  
where are the controlling switches situated SALOON HOUSE. MIDSHIP.  
Searchlight Lamps, No. of —, whether fixed or portable —, are their fittings as per Rule —  
Arc Lamps, other than searchlight lamps, No. of —, are their live parts insulated from the frame or case —, are their fittings as per Rule —  
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 YES  
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 —  
if not of this type, state distance of the combustible material horizontally or vertically above the motors — and —  
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 —  
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.	Ampères.	Revs. per Min.		Fuel Used.	Flash Point of Fuel.
MAIN	2	16	110	146	390	1. STEAM ENGINE.		
AUXILIARY						2. KROMHOUT OIL ENGINE		
EMERGENCY								
ROTARY TRANSFORMER								

## GENERATOR, LIGHTING AND HEATING CONDUCTORS.

DESCRIPTION.	CONDUCTORS.		COMPOSITION OF STRAND.		TOTAL MAXIMUM CURRENT.		Approximate Length. (Lead and Return.) Feet.	Insulated with	HOW PROTECTED.
	No. per Pole.	Total Effective Area per Pole Sq. Ins.	No.	Diameter.	In Circuit.	Rule.			
MAIN GENERATOR	1	.100	19	.083	146	172	50	VARNISHED CAMBRIC	LEAD COVERED ARMOUR & BRAIDED
EQUALISER CONNECTIONS									
AUXILIARY GENERATOR									
EMERGENCY GENERATOR									
ROTARY TRANSFORMER									
ENGINE ROOM & STANDBY PUMP	2	.01	7	.044	36.5	62	210	VULCANISED INDIA RUBBER	LEAD COVERED ARMOUR & BRAIDED
BOILER ROOM									
AUXILIARY SWITCHBOARDS									
SHORE CONNECTION	1	.100	19	.083	146	172	130	VARNISHED CAMBRIC	LEAD COVERED ARMOUR & BRAIDED
MIDSHIP & FORWARD	1	.075	19	.072	54	97	530	VULCANISED INDIA RUBBER	LEAD COVERED ARMOUR & BRAIDED
AFT ACCOMMODATION	1	.045	7	.052	32	37	96	V.I.R.	L.C.A. & B.
CARGO	1	.0225	7	.064	30	46	520	V.I.R.	L.C.A. & B.
NAVIGATION	1	.01	7	.044	10	31	560	V.I.R.	L.C.A. & B.
ACCOMMODATION									
WIRELESS	1	.0225	7	.064	38	46	464	V.I.R.	L.C.A. & B.
SEARCHLIGHT (WIRING ONLY)	1	.05	19	.064	80	83	990	V.I.R.	L.C.A. & B.
MASTHEAD LIGHT	1	.002	3	.029	38	78	410	V.I.R.	L.C.A. & B.
SIDE LIGHTS	1	.002	3	.029	38	78	80	V.I.R.	L.C.B.
COMPASS LIGHTS									
POOP LIGHTS									
CARGO LIGHTS									
ARC LAMPS									
HEATERS									

## MOTOR CONDUCTORS.

DESCRIPTION.	No. of Motors.	CONDUCTORS.		COMPOSITION OF STRAND.		TOTAL MAXIMUM CURRENT.		Approximate Length. (Lead and Return.) Feet.	Insulated with	HOW PROTECTED.
		No. Per Pole.	Total Effective Area per Pole Sq. Ins.	No.	Diameter.	In Circuit.	Rule.			
BALLAST PUMP										
MAIN BILGE LINE PUMPS										
GENERAL SERVICE PUMP										
EMERGENCY BILGE PUMP										
SANITARY PUMP										
CIRC. SEA WATER PUMPS										
CIRC. FRESH WATER PUMPS										
AIR COMPRESSOR										
FRESH WATER PUMP										
ENGINE TURNING GEAR										
ENGINE REVERSING GEAR										
LUBRICATING OIL PUMPS										
OIL FUEL TRANSFER PUMP										
WINDLASS										
WINCHES, FORWARD										
WINCHES, AFT										
STEERING GEAR—										
(a) MOTOR GENERATOR										
(b) MAIN MOTOR										
WORKSHOP MOTOR										
VENTILATING FANS										
DRILLING MACHINE 2HP	1	1	.01	7	.044	18	31	110	V.I.R.	L.C.A. & B.
GRINDING MACHINE 3HP	1	1	.045	7	.052	27	37	115	V.I.R.	L.C.A. & B.
LATHE 2HP	1	1	.01	7	.044	18	31	120	V.I.R.	L.C.A. & B.
OIL PURIFIER 2HP	1	1	.01	7	.044	18	31	80	V.I.R.	L.C.A. & B.
TURNING MOTOR 2HP	1	1	.075	19	.072	97	97	75	V.I.R.	L.C.A. & B.



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.

p.pro. THE SUNDERLAND FORGE & ENG. CO.LTD.,

W. Park

Electrical Engineers.

Date 16.1.35.

#### COMPASSES.

Distance between electric generators or motors and standard compass 230 FEET.

Distance between electric generators or motors and steering compass 220 FEET.

The nearest cables to the compasses are as follows:—

A cable carrying 1.8 Amperes 18 feet from standard compass, 10 feet from steering compass.

A cable carrying 1.9 Amperes 6 feet from standard compass LED INTO ~~feet from~~ steering compass.

A cable carrying 1.9 Amperes LED INTO feet from standard compass 6 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 no effect

The maximum deviation due to electric currents was found to be Nil degrees on course in the case of the standard compass, and degrees on course in the case of the steering compass.

pro WORKMAN (1928) LIMITED

F. Cunningham

Builder's Signature.

Date

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 two generators have been installed on board the vessel and tried out under full load, with satisfactory results. The vessel was wired in accordance with the approved plan & the Rules. Megger tests of switchboard, generators & wiring throughout the vessel were satisfactory. In my opinion the vessel is eligible for Notation "Electric Light".

Noted  
L.Y.  
1/2/35

JP

Total Capacity of Generators 32 Kilowatts.

The amount of Fee ... £23 : 0 : 26.1.1935

Travelling Expenses (if any) £ :

When received, 16.2.35

Charles J. Hunter  
Surveyor to Lloyd's Register of Shipping.

Committee's Minute

TUE. 12 FEB. 1935

Assigned

See Bel. JE 11456



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Foundation