

REPORT ON ELECTRICAL EQUIPMENT.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

No 56166

Received at London Office 10 SEP 1948

Report 9-9-1948 When handed in at Local Office 9-9-1948 Port of **CARDIFF**
Survey held at **CARDIFF** Date, First Survey **6.5.48** Last Survey **26.6.1948**
No. **95404** (Number of Visits **10**)
Name of the vessel **TENAGODUS** Tons { Gross **10664** Net **6300**
Builder **MOBILE ALA.** By whom built **ALABAMA D.D. & S.B. CO. LTD** Yard No. **1011** When built **1911**
Owner **GLO. S. & P. PETROLEUM CO. LTD.** Port belonging to **LONDON**
Light Installation fitted by **ALABAMA D.D. & S.B. CO. LTD** Contract No. **1011** When fitted **1911**
Fitted for carrying Petroleum in bulk **YES**

Distribution **ALTERNATING CURRENT 3-PHASE 3-WIRE**
Supply for Lighting **115** volts, **230** volts, **450** volts, Power **450** volts.
Alternating Current, Lighting **ALTERNATING** Power **ALTERNATING**
current system, state frequency of periods per second **60 CYCLES/SECOND**

Automatic Governor been tested and found efficient when the whole load is suddenly thrown on or off **YES**
do they comply with the requirements regarding temperature rise **ALL STANDARDS**, are they compound wound **YES**, are they compound wound **55 KW EXCITERS ONLY**
compounded 5 per cent. **YES**, if not compound wound state distance between each generator **9.0"**
When one generator is fitted are they arranged to run in parallel **YES**, is an adjustable regulating resistance fitted in **400 KW SETS**
shunt field **OF EXCITER YES** Have certificates of test results for machines under 100 kw. been submitted and

Have machines over 100 kw. been inspected by the Surveyors during manufacture and testing **YES**
are they so spaced or shielded that they cannot be accidentally earthed, or touched **YES** Are the lubricating arrangements of the generators as per Rule **YES**
Generators **IN ENGINE ROOM STARBOARD SIDE**, is the ventilation generators satisfactory **YES** are they clear of all inflammable material **YES** if situated near unprotected
other combustible material, state distance of same horizontally from or vertically above the generators **YES** and **YES**
are they protected from mechanical injury and damage from water, steam or oil **YES**, are their axes of rotation fore and aft **YES**
are the bedplates and frames of the generating plant efficiently earthed **YES** are the prime movers and their respective generators
effectively earthed **YES** Main Switch Boards, where placed **IN ENGINE ROOM**

If the generators and main switchboard are not placed in the same compartment, is each generator provided with
insulated pole as near as possible to the terminals of the generator, additional to that provided on the main switchboard **YES**
are they placed in accessible positions, free from inflammable gases and acid fumes **YES**, are they protected from mechanical
damage from water, steam or oil **YES**, if situated near unprotected woodwork or other combustible material, state distance of same
from or vertically above the switchboards **YES** and **YES**, are they constructed wholly of durable, non-ignitable non-absorbent
YES, is all insulation of high dielectric strength and of permanently high insulation resistance **YES**
approved type **YES**, if semi-insulating material is used, are all conducting parts insulated from the slab with mica or micanite or other
insulating material, and the slab similarly insulated from its framework **YES**, is the non-hygroscopic insulating material of an approved
type **YES**, and is the frame effectively earthed **YES** Are the fittings as per Rule regarding:— spacing or shielding of live parts
boards, accessibility of all parts **ALL STANDARDS**, absence of fuses on back of board **YES**, temperature rise of
ALL STANDARDS, individual fuses to voltmeter, pilot or earth lamp **YES**, are moving parts of switches alive in the
NO are all screws and nuts securing connections effectively locked **YES** are any fuses fitted on the live side of

NO Main Switchgear, description of switchgear for each generator and each outgoing circuit, and arrangement of equalizer switches
generators. **THREE POLE LINKED CIRCUIT BREAKERS WITH OVERLOADS AND REVERSE POWER TRIPS AND THREE**
TRIP SWITCHES. **55 KW EXCITERS. D.P. LINKED BREAKER WITH OVERLOADS AND SELECTOR SWITCH. 75 KW**
D.P. SWITCH. OUTGOING CIRCUITS, TWO & THREE POLE LINKED CIRCUITS BREAKERS.
Are cupboards or compartments containing switchboards composed of
material or lined with approved material **YES** Instruments on main switchboard **400 KW SETS 7** **2300 VOLT PANEL 10** ammeters **4**
3

synchronising device for paralleling purposes. For compound machines is the ammeter connected on the opposite pole to equaliser connection
Earth Testing, state what means are provided at the main switchboard for indicating the state of the insulation of the system
EARTH LAMPS Switches, Circuit Breakers and Fusible Cut-outs,
with the requirements of the Rules **ALL STANDARDS** are the fusible cutouts of an approved type **ALL STANDARDS**

current protection devices been tested under working conditions YES Joint Boxes, Section and Distribution Boards, is the construction, protection, insulation, material, and position of these as per rule A.I.E.E. STANDARDS

Cables: Single, twin, ~~concentric~~ or multicore YES are the cables insulated and protected as per Tables IV, V, X or XI of the Rules A.I.E.E. STANDARDS

If the cables are insulated otherwise than as per Rule, are they of an approved type YES Fall of Pressure, state maximum between bus bars and any point of the installation under maximum load Cable Sockets, are the ends of all cables having a sectional area of 0.04 square inch and above provided with paper sockets YES Paper Insulated and Varnished Cambric Insulated Cables.

If conductors are paper or varnished cambric insulated, is the dielectric at the exposed ends of the conductor protected from moisture by being suitably sealed with insulating compound YES, or waterproof insulating tape YES 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 Are cables in machinery spaces, galleys, laundries, bathrooms and lavatories lead covered or run in conduit LEAD COVERED

Support and Protection of Cables, state how the cables are supported and protected MAIN FEEDER CABLES LEAD COVERED AND BASKET WEAVE ARMOURED RUN IN CONDUIT ON DECK SUPPORTED BY STAYS UNDER FORE & AFT WALK WAY CABLES IN ACCOMMODATION AND ENGINE ROOM CLIPPED TO BRACKETS AND BULK HEADS. MAIN PROPULSION CABLES SUPPORTED ON CLEATS

If cables are run in wood casings, are the casings and caps secured by screws YES, are the cap screws of brass YES, are the cables run in separate grooves YES If armoured and lead covered cables are secured by metal clips, are the clips spaced as per Table VIII A.I.E.E. STANDARDS

Refrigerated Chambers, are the cables and fittings in accordance with the special requirements YES

Joints in Cables, state if any, and how made, insulated, and protected IN JUNCTION BOXES

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 BUSHES & STEEL COLLARS

Earthing Connections, state what earthing connections are fitted and their respective sectional areas CABLES EFFECTIVELY EARTHED

YES are their connections made as per Rule YES

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 DIESEL DRIVEN EMERGENCY GENERATOR, ON ROOF DECK PORT SIDE WHICH CAN BE CONNECTED TO MAIN AUX. BARS THROUGH TRIPLE ISOLATING SWITCH.

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 WHEELHOUSE

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 stokeholds 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 YES

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

FITTINGS IN PUMP ROOMS THE OUTSIDE COMPARTMENTS, how are the cables led OUTSIDE COMPARTMENTS

where are the controlling switches situated OUTSIDE COMPARTMENTS

are all fittings suitably ventilated YES, are all switches and lampholders constructed wholly of non-ignitable, non-absorbent materials YES

Heating and Cooking Appliances, are they constructed and fitted as per Rule A.I.E.E. STANDARDS are air heaters constructed and fitted as per Rule YES

Searchlight Lamps, No. of 305, whether fixed or portable YES, are their fittings as per Rule YES

Arc Lamps, other than searchlight lamps, No. of 305, are their live parts insulated from the frame or case YES, are their fittings as per Rule YES

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 A.I.E.E. STANDARDS 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 WHERE POSSIBLE 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 DRIP PROOF AND TOTALLY ENCLOSED if not of this type, state distance of the combustible material horizontally or vertically above the motors AND

have machines of over 100 BHP been inspected by the Surveyors during manufacture and testing YES Control Gear and Resistances, are the generator field and motor speed regulators, starters and controllers constructed and fitted as per Rule A.I.E.E. STANDARDS Lightning Conductors, where lightning conductors are required, are these fitted as per Rule YES 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 are all fuses of the fitted cartridge type YES are they of an approved type A.I.E.E. STANDARDS

If portable lamps for use in dangerous spaces are supplied, are they of a self-contained, battery-fed type approved by the Home Office YES

Spare Gear, if the vessel is for open sea service have spares been supplied as per Rule PARTICULARS NOT AVAILABLE AT TIME OF SURVEY

Rpt. 9a.

Port of

CARDIFF

Continuation of Report No.

dated

on the

DESCRIPTION	NO OF NOTES	CONDUCTORS (PER CABLE)	TOTAL NOMINAL AREA PER CABLE	COMPOSITION OF STRAND	NO	DIAMETER	CIRCUIT	TOTAL MAXIMUM CURRENTS AMPS	A.I.E.E. RULE	APP LENGTH LEAD (FEET)	RESULT	HOW PROTECTED
2 STRIPPING PUMPS (EACH)	1	1	.0521	7	.037	61	✓	99	-	9.6	✓	C & BASKET WEAVE ARMOURED
3 CARGO PUMPS (EACH)	1	1	.3535	37	.110	243	✓	367	-	"	✓	"
AUX. CIRC. PUMP (EACH)	1	1	.0261	7	.008	40	✓	65	-	"	✓	"
2 MAR. CONDENSATE PUMPS	1	1	.0206	7	.061	31	✓	55.3	-	"	✓	"
2 FIRE PUMPS (EACH)	1	1	.0521	7	.037	60.5	✓	99	-	"	✓	"
2 ENG. RM VENT FANS	1	1	.0051	7	.030	3	✓	22	-	"	✓	"
REFRIG. POWER (EACH)	1	1	.0032	7	.032	23	✓	30	-	"	✓	"
2 REFRIG COMPRESSORS	1	1	.0051	7	.030	28	✓	22	-	"	✓	"
REFRIG. CIRC. PUMP	1	1	.0051	7	.030	1	✓	22	-	"	✓	"
ATMOS. DRAIN. REC. PUMP	1	1	.0051	7	.030	3	✓	22	-	"	✓	"
SALT WATER PUMP	1	1	.0051	7	.030	11	✓	22	-	"	✓	"
AFT. DRINKING WATER PUMP	1	1	.0051	7	.030	1.6	✓	22	-	"	✓	"
DRINKING WATER PUMP	1	1	.0051	7	.030	1.6	✓	22	-	"	✓	"
SOUNDING MACHINE	1	1	.0032	7	.024	1.6	✓	22	-	"	✓	"
MAIN MOTOR COOLING FAN	1	1	.013	7	.047	20	✓	41	-	"	✓	"
SHAFT TURNING GEAR	1	1	.0051	7	.030	7.5	✓	22	-	"	✓	"
COMBUSTION CONTROL	1	1	.013	7	.047	20	✓	41	-	"	✓	"
PUMP RM EXH. BLOWER	1	1	.0051	7	.030	2	✓	22	-	"	✓	"
LATHE	1	1	.0051	7	.030	3	✓	22	-	"	✓	"
DRILL PRESS	1	1	.0051	7	.030	1.6	✓	22	-	"	✓	"
GRINDER	1	1	.0051	7	.030	4.6	✓	22	-	"	✓	"

PARTICULARS OF GENERATING PLANT.

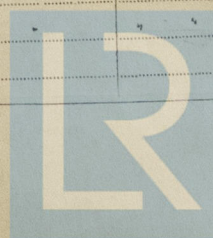
DESCRIPTION OF GENERATOR.	No. of	RATED AT				DRIVEN BY	WHERE DRIVEN BY AN INTERNAL COMBUSTION ENGINE.	
		Kilowatts.	Volts.	Ampères.	Revs. per Min.		Fuel Used.	Flash Point of Fuel.
MAIN ...	2	400	450	642	1200	STEAM TURBINE		
EXCITERS ...	2	75	110	672	1200	"		
EXCITERS ...	2	55	120	457	1200	"		
EMERGENCY ...	1	75	450	136	900	DIESEL ENGINE	DIESEL OIL ABOVE 150°F.	
ROTARY TRANSFORMER								

GENERATOR, LIGHTING AND HEATING CONDUCTORS.

DESCRIPTION.	CONDUCTORS.		COMPOSITION OF STRAND.		TOTAL MAXIMUM CURRENT. AMPERES.		Approximate Length. (Lead and Return.) Feet.	Insulated with	HOW PROTECTED.
	No. per Pole.	Total Nominal Area per Pole Sq. Ins.	No.	Diameter.	Circuit.	A.I.E.E. Rule.			
MAIN GENERATORS...	1	.7754	61	.128	642	764	-	V.C.	L.C. BASKET WEAVE ARMO.
5000 EXCITERS	1	.7754	61	.128	672	764	-	"	"
EXCITERS CONNECTIONS	1	.8790	61	.110	457	705	-	"	"
EXCITER GENERATOR...	2	2.3562	91	.128	1515	2272	-	"	BRONZE TAPE
5000 PROPULSION EMERGENCY GENERATOR	2	2.3562	91	.128	1160	2272	-	"	"
5000 PROPULSION EMERGENCY MOTOR	1	.1818	19	.034	151	183	-	"	"
TRANSFORMER	1	.0521	7	.037	70	99	-	"	L.C. BASKET WEAVE ARMO
ENGINE ROOM...	1	.0206	7	.061	35	55.5	-	"	"
BOILER ROOM...	1	.1045	19	.083	150	187	-	"	"
EMERGENCY SWITCHBOARDS	1	.0521	7	.087	57	99	-	"	"
440/230 VOLTS GALLEY TRANSFORMERS	1	.5100	61	.103	600	466	-	"	"
120 VOLTS WAREHOUSE BOX	1	.0521	7	.037	70	99	-	"	"
SHIP & FORECASTLE LTD	1	.0281	7	.068	50	65	-	"	"
ST. DK. QRTS. LTD	1	.0521	7	.037	70	99	-	"	"
PER DK. QRTS. LTD	1	.1	19	.083	136	142.49	-	V.I.R.	ARMOURED
EMERGENCY GENERATOR ACCOMMODATION	1	.0032		.024	15	11.8	-	R.I.	"
BATTERY CHARGER	1	.0521	7	.037	70	99	-	V.C.	"
450/230 VOLTS LTD TRANSFORMERS	1	.0082	7	.038	25	30	-	V.C.	"
NAVIGATION LTD	1	.0261	7	.068	50	65	-	"	"
WIRELESS	1	.0032	7	.024	45	11.5	-	R.I.	"
SEARCHLIGHT	1	.0032	7	.024	45	11.5	-	R.I.	"
MASTHEAD LIGHT	1	.5100	61	.103	400	466	-	V.C.	"
SIDE LIGHTS	1	.0082	7	.038	15	30	-	V.C.	"
10 SHORE CONN. COMBINE LIGHTS	1	.0414	7	.086	35	88	-	"	"
POOP LIGHTS	1	.0082	7	.038	15	30	-	V.C.	"
GYRO COMPASS	1	.0082	7	.038	15	30	-	V.C.	"
2 GALLEY RANGES	1	.0414	7	.086	35	88	-	"	"
20 LAMP	1						-	"	"
HEATERS							-	"	"

MOTOR CONDUCTORS.

DESCRIPTION.	No. of Motors.	CONDUCTORS.		COMPOSITION OF STRAND.		TOTAL MAXIMUM CURRENT. AMPERES.		Approximate Length. (Lead and Return.) Feet.	Insulated with	HOW PROTECTED.
		No. Per Pole.	Total Nominal Area per Pole Sq. Ins.	No.	Diameter.	In Circuit.	A.I.E.E. Rule.			
BALLAST PUMP	1	1	.008	7	.038	14.5	30	-	V.C.	"
2 MAIN BILGE LINE PUMPS (EA)	1	1	.008	7	.038	14.5	30	-	V.C.	"
GENERAL SERVICE PUMP	1	1	.0051	7	.030	11	22	-	"	"
EMERGENCY BILGE PUMP	1	1	.2356	37	.090	150	279	-	"	"
SANITARY PUMP	1	1	.0051	7	.030	6.9	22	-	"	"
CIRC. SEA WATER PUMPS	1	1	.0051	7	.030	3	22	-	"	"
CIRC. FRESH WATER PUMPS	1	1	.0051	7	.030	3	22	-	"	"
AIR COMPRESSOR	1	1	.0051	7	.030	3	22	-	"	"
2 FRESH WATER PUMP (EA)	1	1	.0051	7	.030	4.5	22	-	"	"
ENGINE TURNING GEAR	1	1	.0051	7	.030	7.5	22	-	"	"
ENGINE REVERSING GEAR	1	1	.0051	7	.030	7.5	22	-	"	"
2 LUBRICATING OIL PUMPS (EA)	1	1	.013	7	.048	11	41	-	"	"
2 OIL FUEL TRANSFER PUMP (EA)	1	1	.0051	7	.030	11	22	-	"	"
WINDLASS 2 SERVICE PUMPS (EA)	1	1	.0051	7	.030	11	22	-	"	"
WINCHES, FORWARD								-	"	"
WINCHES, AFT								-	"	"
STEERING GEAR—								-	"	"
(a) MOTOR GENERATOR	1	1	.0206	7	.061	46	55.5	-	"	"
2 (b) MAIN MOTORS (EA)	1	1	.0082	7	.038	10	30	-	"	"
WORKSHOP MOTORS	1	1	.0051	7	.030	3	22	-	"	"
2 VENTILATING FANS (EA)	1	1	.0051	7	.030	2.5	22	-	"	"
2 VENTILATION (QRTS)	1	1	.0051	7	.030	1.5	22	-	"	"
2 EVAP FEED PUMP (EA)	1	1	.0829	19	.074	64	134	-	"	"
3 FORCED DRAUGHT FANS (EA)	1	1	.0051	7	.030	3	22	-	"	"
LUB. OIL SEPARATOR	1	1	.013	7	.048	20	41	-	"	"
PULV. CONDENSATE PUMP	1	1						-	"	"



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All Conductors are of annealed copper conforming to British Standard Specification No. 7 (or International Electro-technical Commission Publication No. 28).

The Insulated Conductors are guaranteed to withstand the immersion and resistance tests specified in the Rules.

The foregoing is a correct description.

Electrical Engineers.

Date 7. 9. 48

COMPASSES.

Distance between electric generators or motors and standard compass 26 FEET

Distance between electric generators or motors and steering compass 20 FEET

The nearest cables to the compasses are as follows:—

A cable carrying 25 Amperes 75 feet from standard compass 75 feet from steering compass.

A cable carrying 1 Amperes 6 feet from standard compass 4 feet from steering compass.

A cable carrying 10 Amperes 6 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

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

Builder's Signature.

Date

Is this installation a duplicate of a previous case. YES If so, state name of vessel ALABAMA BUILT T2 TANKER

General Remarks (State quality of workmanship, opinions as to class, &c.)

THE ELECTRICAL INSTALLATION OF THIS VESSEL HAS BEEN BUILT UNDER THE SURVEY AND TO THE REQUIREMENTS OF THE AMERICAN BUREAU OF SHIPPING. THE ORIGINAL PLANS OF THE INSTALLATION ARE NOT AVAILABLE, THE DIMENSIONS STATED IN THIS REPORT HAVE BEEN TAKEN FROM A SIMILAR INSTALLATION. THESE DIMENSIONS HAVE BEEN CHECKED ON THE SHIP AS FAR AS POSSIBLE AND FOUND CORRECT.

THE INSTALLATION HAS BEEN SPECIALLY EXAMINED AND FOUND TO BE IN ACCORDANCE WITH A.I.E.E STANDARDS AND GENERALLY IN ACCORDANCE WITH THE RULES EXCEPT AS NOTED HEREAFTER.

1 NO OVERLOAD OR SHORT CIRCUIT PROTECTION IS PROVIDED ON MAIN PROPULSION UNITS.

2 NO OVERLOAD OR SHORT CIRCUIT PROTECTION IS PROVIDED ON THE TSKWS EXCITER GENERATORS USED FOR MAIN PROPULSION EXCITATION.

3 MAIN PROPULSION CABLE HAS NO LEAD ALLOY SHEATH (BRAIDED ARMOUR OUTSIDE)

THE MATERIALS & WORKMANSHIP ARE GOOD, THE INSTALLATION HAS BEEN MECCER TESTED THROUGHOUT, EXAMINED UNDER WORKING CONDITIONS AND FOUND TO BE SATISFACTORY

IN MY OPINION THE ELECTRICAL INSTALLATION IS SUCH AS COULD BE ACCEPTED BY THE COMMITTEE FOR CLASSIFICATION

Total Capacity of Generators 6535 Kilowatts.

The amount of Fee ... £ 30 : 0 : 0

When applied for,

11-8-1948

Travelling Expenses (if any) £

When received,

21-8-1948

Committee's Minute

WED 6 OCT 1948

Assigned

As now

subject

As now

subject (amended)

Note Cff

art. 11

Thomas Conacher
Surveyor to Lloyd's Register of Shipping.

WED. 20 OCT 1948

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