

# REPORT ON ELECTRICAL EQUIPMENT

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

Received at London Office 10 OCT 1939

Date of writing Report 30-9-1939 When handed in at Local Office 6/10/1939 Port of Newcastle-on-Tyne

No. in Survey held at Newcastle (Wallsend) Reg. Book. 35032 Date, First Survey 16 Aug. Last Survey 2 Oct 1939 (Number of Visits 11)

on the M.V. THIARA Tons Gross 10330 Net

Built at Newcastle (Wallsend) By whom built Swan Hunter & Higham Richmond No. 1563 When built 1939

Owners Anglo-Saxon Petroleum Co. Port belonging to LONDON

Electrical Installation fitted by Sunderland Forge & Eng'g Co. Contract No. When fitted 1939

Is vessel fitted for carrying Petroleum in bulk YES Is vessel equipped with D.F. YES E.S.D. YES Gy.C. Sub.Sig.

Have plans been submitted and approved YES System of Distribution TWO WIRE Voltage of supply for Lighting 110

Heating Power 110 Direct or Alternating Current, Lighting Direct Power Direct If Alternating Current state frequency Prime Movers,

has the governing been tested and found efficient when the whole 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

Positive 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 YES and the results found as per rule YES Are the lubricating arrangements and the construction

of the generators as per rule YES Position of Generators Engine room starboard side

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 Engine room starboard side

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 INTERDYM, 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

Double pole Knife switches and double pole fuses

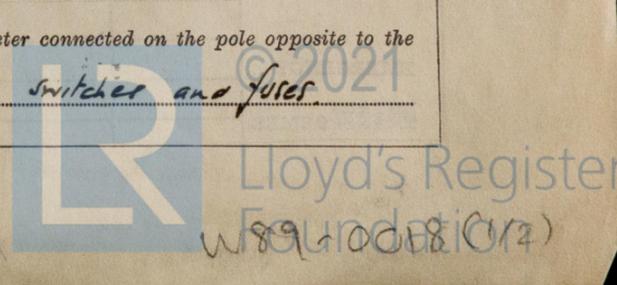
and for each outgoing circuit Double pole changeover Knife switches and double pole

fuses

Are compartments containing switchboards composed of fire-resisting material or lined as per Rule YES Instruments on main switchboard 2

ammeters 2 voltmeters synchronising devices. For compound machines in parallel is the ammeter connected on the pole opposite to the

equaliser connection Earth Testing, state means provided lamps coupled to earth via switches and fuses



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, are the reversed current protection devices connected on the pole opposite to the equaliser connection -, have they been tested under working conditions -. 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 -, state maximum fall of pressure between bus bars and any point under maximum load 4.5V, 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 exposed ends YES 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. L.C.A. Are cables in machinery spaces, galleys, laundries, etc., lead covered YES, or run in conduit -. State how the cables are supported and protected Cleated on to perforated metal trays.

Are all lead sheaths, armouring and conduits effectually bonded and earthed YES. Refrigerated chambers, are the cables and fittings as per Rule YES. 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 YES and with what material Fibre. Alternative Lighting, are the groups of lights in the engine and boiler rooms arranged as per Rule YES. Emergency Supply, state position - 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 -, are they adequately ventilated -. 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 Mounted in welded steel enclosures with glazed apertures

and where are the controlling switches fitted Centre-castle, are all fittings suitably ventilated YES, are all fittings and accessories constructed and installed as per Rule YES. Searchlight Lamps, No. of Connection fitted, whether fixed or portable -, are their fittings as per Rule -. Heating and Cooking, is the general construction as per Rule -, are the frames effectually earthed -, are heaters in the accommodation of the convection type -. 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 -.

Have motors of 100 BHP and over been inspected by the Surveyors during manufacture and testing -. Have certificates of test for motors under 100 BHP intended for essential services been supplied and the results found as per Rule YES. 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. If portable lamps for use in dangerous spaces are supplied, are they of a self-contained battery-fed flameproof type -. 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 megger 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 ...	1	20	110	182	400	Steam engine		
	1	20	110	182	400	Diesel	Over 150°F	
EMERGENCY ...								
ROTARY TRANSFORMER								

GENERATOR CABLES.

DESCRIPTION.	KILOWATTS.	CONDUCTORS.		MAXIMUM CURRENT IN AMPERES.		APPROX. LENGTH (lead plus return feet).	INSULA-TED 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 GENERATORS ...	20	1	19/083	182	191	80	V.C	L.C.A
" " EQUALISER ...								
EMERGENCY GENERATOR ...								
ROTARY TRANSFORMER: MOTOR ...								
" " GENERATOR ...								

MAIN DISTRIBUTION CABLES.

AUX. SWITCHBOARDS AND SECTION BOARDS ...	KILOWATTS.	CONDUCTORS.	MAXIMUM CURRENT IN AMPERES.	APPROX. LENGTH (lead plus return feet).	INSULA-TED WITH.	HOW PROTECTED.
Shore supply	1	19/083	182	191	230	V.C L.C.A
Projector	1	19/064	60	135	570	V.C L.C.A
Workshop machinery.	1	7/064	54	73	242	V.C L.C.A
Vent. fans	1	19/052	60	104	230	V.C L.C.A

LIGHTING AND HEATING, ETC., CABLES.

WIRELESS ...	KILOWATTS.	CONDUCTORS.	MAXIMUM CURRENT IN AMPERES.	APPROX. LENGTH (lead plus return feet).	INSULA-TED WITH.	HOW PROTECTED.
NAVIGATION LIGHTS ...	1	7/064	15	75	570	V.C L.C.A
LIGHTING AND HEATING ...	1	7/026	5	24	570	V.I.R L.C.A
Midship lighting	1	19/072	67	137	570	V.C L.C.A
Crew accommodation aft	1	7/064	39	75	230	V.C L.C.A
Engine and boiler rooms.	1	7/064	60	75	48	V.C L.C.A
Cargo lighting, aft	1	7/026	10	24	230	V.I.R L.C.A

MOTOR CABLES.

ALL IMPORTANT MOTORS TO BE ENUMERATED.	No.	B.H.P.	CONDUCTORS.	MAXIMUM CURRENT IN AMPERES.	APPROX. LENGTH (lead plus return feet).	INSULA-TED WITH.	HOW PROTECTED.
Oil purifier	1	2	7/029	17	18.2	136	V.I.R L.C.A
Firing pump	1	1 1/4	7/029	16	18.2	158	V.I.R L.C.A
Turning motor	1	5 1/2	19/052	60	104	130	V.C L.C.A
Midship vent. fan	1	3 1/2	7/052	30	57	480	V.C L.C.A

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.

*H. Sunderland Goye & Co. Ltd.*  
*H. J. Surney*

Electrical Engineers.

Date *2-10-1939*

COMPASSES.

Minimum distance between electric generators or motors and standard compass *250' from generators, 30' from vent motor*

Minimum distance between electric generators or motors and steering compass *260' from generators, 40' from vent motor*

The nearest cables to the compasses are as follows:—

A cable carrying *.4* Ampères *INSIDE* feet from standard compass ..... feet from steering compass.

A cable carrying *.4* Ampères *INSIDE* feet from standard compass ..... feet from steering compass.

A cable carrying *5* Ampères *5* feet from standard compass *15* 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 *every* course in the case of the

standard compass, and *Nil* degrees on *every* course in the case of the steering compass.

For *W. B. Buckie*  
SWAN, HUNTER, & WIGHAM RICHARDSON, LTD.

Builder's Signature.

Date *4.10.39.*

Is this installation a duplicate of a previous case *YES* If so, state name of vessel *TORINIA*

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

*The electrical equipment has been installed with special survey. The quality of workmanship and the materials used are good. The insulation resistance of each circuit was measured. The governing and compounding of the generator sets was tested, and found satisfactory. In my opinion, the electrical equipment is suitable for a classed vessel.*

*Noted*  
*L. J.*  
*13/10/39*

Total Capacity of Generators *40* Kilowatts.

The amount of Fee ... £ *25 : 0* : { When applied for *9 OCT 1939*

Travelling Expenses (if any) £ : : { When received *16/10/39* *16/10*

*W. B. Bowen*  
Surveyor to Lloyd's Register of Shipping.

Committee's Minute *FR 1 13 OCT 1939*  
Assigned *See Note L.E. 97941*

2nd, 10, 38.—Transfer. (MADE IN ENGLAND.)  
(The Surveyors are requested not to write on or below the space for Committee's Minute.)