

# REPORT ON ELECTRICAL EQUIPMENT.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

Received at London Office

-1 MAR 1937

Date of writing Report 27. 2. 1937 When handed in at Local Office 27. 2. 1937 Port of MIDDLESBROUGH  
 No. in Survey held at SOUTH BANK Date, First Survey 6 Jan Last Survey 2 Feby 1937  
 Reg. Book. "KELT" (Number of Visits.....) 9  
 on the "KELT" Tons { Gross 455  
 Net 165  
 Built at South Bank By whom built Smiths Dock Co. Ltd Yard No. 1020 When built 1937  
 Owners Hull Northern Fishing Co. Ltd. Port belonging to Hull  
 Electric Light Installation fitted by RICHARD PICKERSGILL & SONS, LTD. Contract No. \_\_\_\_\_ When fitted 1937  
 Is the Vessel fitted for carrying Petroleum in bulk No.

### System of Distribution

Direct Current

Pressure of supply for Lighting 100 volts, Heating \_\_\_\_\_ volts, Power \_\_\_\_\_ volts.

Direct or Alternating Current, Lighting Direct Current Power \_\_\_\_\_

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 Yes

Generators, do they comply with the requirements regarding temperature rise Yes, are they compound wound Yes  
 are they over compounded 5 per cent. Yes, if not compound wound state distance between each generator \_\_\_\_\_

Where more than one generator is fitted are they arranged to run in parallel \_\_\_\_\_, is an adjustable regulating resistance fitted in series with each shunt field Yes  
 approved Yes Have certificates of test results for machines under 100 kw. been submitted and \_\_\_\_\_

Are 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 Yes

Position of Generators Starboard Side of Engine room, is 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 Yes, are their axes of rotation fore and aft Yes

Earthing, are the bedplates and frames of the generating plant efficiently earthed Yes are the prime movers and their respective generators in metallic contact No

Main Switch Boards, where placed Starboard Side of Engine room

If 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 Yes, are 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, is it of an approved type Yes

if semi-insulating material is used, are all conducting parts insulated from the slab with mica or micaite or other non-hygroscopic 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 Yes, accessibility of all parts Yes, absence of fuses on back of board Yes, temperature rise of omnibus bars \_\_\_\_\_, individual fuses to voltmeter, pilot or earth lamp Yes, are moving parts of switches alive in the "off" position No

are all screws and nuts securing connections effectively locked Yes are any fuses fitted on the live side of switches Yes

Main Switchgear, description of switchgear for each generator and each outgoing circuit, and arrangement of equalizer switches Double Pole Main Switch & Double Pole Circuit Breaker & Double Pole

Are turbine driven generators fitted with emergency trip switch as per rule \_\_\_\_\_ Are cupboards or compartments containing switchboards composed of fire-resisting material or lined with approved material \_\_\_\_\_ Instruments on main switchboard \_\_\_\_\_ ammeters \_\_\_\_\_  
 voltmeters \_\_\_\_\_ 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 2 Lamps in series across positive & negative to Earth

Switches, Circuit Breakers and Fusible Cut-outs, do these comply with the requirements of the Rules \_\_\_\_\_ are the fusible cutouts of an approved type Yes have the reversed \_\_\_\_\_

current protection devices been tested under working conditions  **Joint Boxes, Section and Distribution Boards,** is the construction, protection, insulation, material, and position of these as per rule  **Yes**

**Cables:** Single, twin, concentric, or multi-core  are the cables insulated and protected as per Tables IV, V, X or XI of the Rules **Yes**

If the cables are insulated otherwise than as per Rule, are they of an approved type  **Fall of Pressure,** state maximum between bus bars and any point of the installation under maximum load **Yes**

**Cable Sockets,** are the ends of all cables having a sectional area of 0.04 square inch and above provided with soldering 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  or waterproof insulating tape  **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 Armoured + Braided**

**Support and Protection of Cables,** state how the cables are supported and protected **Clipped as per Rules**

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,** are the cables and fittings in accordance with the special requirements  **None**

**Joints in Cables,** state if any, and how made, insulated, and protected **None**

**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 **Dynamo Diaplate to Dynamo Seating 19.064** are their connections made as per Rule

**Alternative Lighting,** are the groups of lights in the propelling machinery space arranged as per Rule  **Emergency Supply,** state position and method of control of the emergency supply and how the generator is driven **Yes**

**Navigation Lamps,** are these separately wired  controlled by separate switch and separate fuses  are the fuses double pole  are the switches and fuses grouped in a position accessible only to the officers on watch  has each navigation lamp an automatic indicator as per Rule  **Secondary Batteries,** are they constructed and fitted as per Rule

**Fittings,** are all fittings on weather decks, in stokeholds and engine rooms and wherever exposed to drip or condensed moisture, watertight  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 **Heavy Glands + Thick Glass with thick rubber ring + Packing Glands** are any fittings placed in spaces where inflammable or explosive dust or gases are liable to be present; if so, how are they protected **Heavy Glands + Glass + Rubber + Packing Glands** how are the cables led **Through beam** where are the controlling switches situated **Engine Room** are all fittings suitably ventilated  are all switches and lampholders constructed wholly of non-ignitable, non-absorbent materials

**Heating and Cooking Appliances,** are they constructed and fitted as per Rule  are air heaters constructed and fitted as per Rule

**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  are the coils self-contained and readily removable for replacement  are the brushes, brush holders, terminals and lubricating arrangements as per Rule  are the motors placed in well-ventilated compartments in which inflammable gases cannot accumulate and clear of all inflammable material  are they protected from mechanical injury and damage from water, steam or oil  are their axes of rotation fore and aft  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

have machines of over 100 BHP been inspected by the Surveyors during manufacture and testing  **Control Gear and Resistances,** are the generator field and motor speed regulators, starters and controllers constructed and fitted as per Rule  **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  are all fuses of the filled cartridge type  are they of an approved type

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

**Spare Gear,** if the vessel is for open sea service have spares been supplied as per Rule

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	8	100	80	Steam Engine	Coal		
AUXILIARY ...								
EMERGENCY ...								
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.	Rule.			
MAIN GENERATOR ...	2	.0600	19	.064	55	83	234+	43R.	Lead
EQUALISER CONNECTIONS ...									
AUXILIARY GENERATOR ...									
EMERGENCY GENERATOR ...									
ROTARY TRANSFORMER MOTOR GENERATOR ...									
ENGINE ROOM ...	2	.0090	7	.036	6	24	64+	43R.	Lead
BOILER ROOM ...									
AUXILIARY SWITCHBOARDS ...									
ACCOMMODATION ...	2	.0090	7	.036	8	24	44+	43R.	Lead
AP. Bridge	2				16	24	150+		
Donkey	2	.0030		.036	6	12			
Navigation	2	.0090		.036	4	24	160+	43R.	Lead
WIRELESS ...	2	.0090		.036	15	24	150+	43R.	Lead
SEARCHLIGHT ...									
MASTHEAD LIGHT ...									
SIDE LIGHTS ...									
COMPASS LIGHTS ...									
POOP LIGHTS ...									
CARGO LIGHTS ...									
ARC LAMPS ...									
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.	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 ...										

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.

**RICHARD PICKERSGILL & SONS, LTD.**

Electrical Engineers.

Date February 25<sup>th</sup> 1937

COMPASSES.

Distance between electric generators or motors and standard compass 60'

Distance between electric generators or motors and steering compass 55'

The nearest cables to the compasses are as follows:—

A cable carrying 50 Watts Ampères 5 feet from standard compass 10 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 Ye.

Has the effect of switching on and off circuits, motors and other electro-magnetic apparatus within the vicinity of the compasses been noted Ye.

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

FOR SMITH'S DOCK CO. LTD.

J. Cairns

Builder's Signature.

Date 26<sup>th</sup> Feb 1937

Is this installation a duplicate of a previous case Ye. If so, state name of vessel Bengali's previous transfer of class.

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

The materials and workmanship are good.  
This electric light installation has been fitted aboard under special survey and in accordance with the Rules. It has been tested under working conditions with satisfactory results and is, in my opinion, suitable for a classed vessel.

Total Capacity of Generators 8. Kilowatts.

The amount of Fee ... £ 8-0-0 When applied for, 16.2.37

Travelling Expenses (if any) £ : : 2.4.37 When received, 3/4

P. J. McA...  
Surveyor to Lloyd's Register of Shipping.

Committee's Minute TUE 2 MAR 1937

Assigned See Indt 76 15919

2m.5.51.-Transfer. The Surveyors are requested not to write on or below the space for Committee's Minute.



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