

# REPORT ON ELECTRIC FITTINGS.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

22 SEP 1925

Date of writing Report 12-9-1925 When handed in at Local Office 21-9-1925 Port of Belfast.

No. in Survey held at Belfast Date, First Survey 12<sup>th</sup> May 1925 Last Survey 3<sup>rd</sup> Sept 1925  
Reg. Book.

on the New Steel S.S. "Rawalpindi"

Built at Greenock By whom built Harland &amp; Wolff Ltd Yard No. 660AK When built 1925

Owners Peninsular &amp; Oriental S &amp; Coy Ltd. Port belonging to Greenock.

Electric Light Installation fitted by Harland &amp; Wolff Ltd Belfast Contract No. 660AK When fitted 1925.

System of Distribution Double wire, Distribution &amp; Sub-distribution System.

Pressure of supply for Lighting 220 volts, Heating 220 volts, Power 220. 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 Yes.

Generators, do they comply with the requirements regarding overload 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 Yes. , is an adjustable regulating resistance fitted in series with each shunt field Yes.

Are all terminals accessible and clearly marked Yes. , are they so spaced or shielded that they cannot be accidentally earthed, or short circuited Yes.

Position of Generators Are the lubricating arrangements of the generators as per Rule Yes.   
Emergency Generator on Emerg. Dynamo Flat. Eng Room Boat Deck Level.   
Main Generator on Dynamo platform above Thrust Recco.

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 axis 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 Yes.

Main Switch Boards, where placed On Dynamo platform above Thrust Recco. Emerg board on Emerg Dynamo Flat. Eng 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, incombustible non-absorbent materials Yes. , is all insulation of high dielectric strength and of permanently high insulation resistance Yes.

insulated from the slab with mica or micanite and the slab similarly insulated from its framework Yes. , and is the frame effectively earthed Yes.

Are the following fittings as per Rule, viz.:— spacing or shielding of live parts Yes. , absence of fuses on back of board Yes. , proportion of omnibus bars Yes. , accessibility of all parts Yes. , individual fuses to voltmeter, pilot or earth lamp Yes. , connections of switches Yes.

Main Switchgear, description of switchgear for each generator and each outgoing circuit, and arrangement of equalizer switches The switchgear of each

Generator consists of an 800 amp. D.P. switch with equalizer blade in advance &amp; an 800 amp. D.P. circuit breaker (Yes &amp; No) with time lag. The following D.P. circuit breakers (Yes only) are on outgoing circuits 4-400 amp, 1-300 amp, 15,200 amp. All other circuits have each a D.P. switch &amp; a D.P. fuse.

Instruments on main switchboard Nine ammeters two voltmeters arranged 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 lamps.

Switches, Circuit Breakers and Fusible Cut-outs, do these comply with the requirements of the Rules Yes.

Section and Distribution Boards, is the construction, protection, insulation, material, and position of these as per rule Yes.



**Insulation of Cables,** state type of cables, single or twin *Single* are the cables insulated and protected as per Tables III or IV of the Rules. *Yes.*

**Fall of Pressure,** state maximum between bus bars and any point of the installation under maximum load *10 volts.*

**Cable Sockets and other connections,** are the ends of all cables having a sectional area of 0.007 square inch and above provided with soldering socket *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 *clipped to perforated steel plating protected by lead covering or lead covering, served, steel armoured & braided overall.*

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 VI *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

**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 Positions,** 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 *all electric light fittings, heaters and sockets etc., fitted other than to steelwork of the ship are provided with earthing connections equivalent to the working conductor.* 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 *Emerg. Dynamo flat Engine Room: control from the Emerg switchboard fitted on same flat: generator driven by a Direct-coupled Petrol-Paraffin Engine.*

**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.* are separate screens provided for the use of oil and electric side lights *Yes.*

are separate oil lanterns provided for the mast head lights and side lights *Yes.*

**Fittings,** are all fittings on weather decks, in stokeholds and engine rooms and wherever exposed to drip or condensed moisture, watertight *A.S. on Decks, Fitt. proof in Eng. Boiler Room* 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

how are the cables led

where are the controlling switches situated

**Searchlight Lamps,** No. of *One.* whether fixed or portable *portable* are their fittings as per Rule *Yes.*

**Are 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 axis of rotation fore and aft as far as 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 —, 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 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

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



## PARTICULARS OF GENERATING PLANT.

DESCRIPTION OF GENERATOR.	No. of	RATED AT				<i>kwh</i> , DRIVEN BY.	WHERE DRIVEN BY AN INTERNAL COMBUSTION ENGINE.	
		Kilowatts,	Volts.	Ampères.	Revs. per Min.		Fuel Used.	Flash Point of Fuel.
MAIN ... ..	4	150	225	667	400	a 225 BHP Comp. Vert. Steam Eng.	—	—
AUXILIARY ...	—	—	—	—	—	—	—	—
EMERGENCY ...	1	25	220	114	650	Petrol-Paraffin Eng.	—	—
ROTARY TRANSFORMER	—	—	—	—	—	—	—	—

## LIGHTING AND HEATING CONDUCTORS.

[illegible]

## MOTOR CONDUCTORS.

Ref. No.	DESCRIPTION.	No. of Motors.	Effective Area of each Conductor. Sq. Ins.	COMPOSITION OF STRAND.		Total Maximum Current. Amperes.	Approximate Length. (Lead and Return.) Feet.	Insulated with	HOW PROTECTED.
				No.	Diameter.				
	BALLAST PUMP ... ..	—	—	—	—	—	—	—	—
	MAIN BILGE LINE PUMPS ...	—	—	—	—	—	—	—	—
	GENERAL SERVICE PUMP ...	—	—	—	—	—	—	—	—
	EMERGENCY BILGE PUMP ...	1	0.1	19	.083	98✓	400	L.P.R.	Lead sheathing.
	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 ... ..	—	—	—	—	—	—	—	—
	WORKSHOP MOTOR ... ..	1	0.007	7	.036	20✓	180	L.P.R.	L.S.B.B.
	VENTILATING FANS ... ..	44	0.0225	7	.064	40✓	400	L.P.R.	Lead covering
	" " Eng Room. 2	2	0.04	19	.052	48✓	350	L.P.R.	Lead covering
	" " Boiler Room. 4	4	0.0225	7	.064	24✓	520	L.P.R.	Lead covering



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.



Electrical Engineers.

Date 16<sup>th</sup> Sep 1925.

# COMPASSES.

Distance between electric generators or motors and standard compass Nearest Generator 215 ft. Nearest Motor 32 ft.  
 Distance between electric generators or motors and steering compass " " 214 ft. " " 28 ft.

The nearest cables to the compasses are as follows:—

A cable carrying	13.	Ampères	20	feet from standard compass	22	feet from steering compass.
A cable carrying	16	Ampères	32	feet from standard compass	28	feet from steering compass.
A cable carrying	36	Ampères	42	feet from standard compass	43	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 all course in the case of the standard compass, and Nil degrees on all. course in the case of the steering compass.

Harland & Wolff.

Builder's Signature.  
as above.

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.)

This installation has been installed under special survey & has been tested as required by the Rules & found under working conditions & found in efficient condition.

It is submitted that this vessel is eligible to be entered as (S.S. 1000 T.D.)

Elec. Light.

W.H. 23/9/25.

Total Capacity of Generators 625 Kilowatts

The amount of Fee

See charges made by 1st Entry Report.

When applied for,

8-9-19-25

When received,

19

Travelling Expenses (if any) £

William Butler

Surveyor to Lloyd's Register of Shipping.

Committee's Minute

Assigned