

# REPORT ON ELECTRIC FITTINGS.

No. 10,409

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

Date of writing Report

10

When handed in at Local Office 30 - 6 - 1930 Port of

Received at London Office

1 JUL 1930

No. in Survey held at

Beefast

Date, First Survey

5<sup>th</sup> March

Last Survey

20<sup>th</sup> June

1930

16189 on the

Ch. V. Bulannic

(Number of Visits)

Built at

Belfast

By whom built Messrs Harland &amp; Wolff Ltd

Yard No. 807

Tons { Gross  
Net

When built 1930.

Owners

White Star Line

Port belonging to

Liverpool

Electric Light Installation fitted by Messrs Harland &amp; Wolff Ltd

Contract No. 807. When fitted 1930.

## System of Distribution

Two wire direct current 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

Generators, do they comply with the requirements regarding rating

Yes.

, are they compound wound

Yes.

are they over compounded 5 per cent.

Yes.

, if not compound wound state distance between each generator

Yes.

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, clearly marked, and furnished with sockets

Yes.

, are they so spaced or shielded that they cannot be accidentally earthed, short circuited, or touched

Yes.

Are the lubricating arrangements of the generators as per Rule

Yes.

## Position of Generators

Main Generators in Aux. Motor Room Ford. Engg. Generator in House on C. Deck

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

Yes.

## Main Switch Boards, where placed

On Switchboard Platform. Fore End of Aux. Motor Rm.

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.

with mica or micanite or other non-hygroscopic insulating material, and the slab similarly insulated from its framework

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.

, proportion of omnibus bars

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

Reverse Current Circuit Breakers with Time Limits &amp; Interlocking Equalizer Switch for each Generator &amp; D.P. Overload Circuit Breakers for each outgoing circuit

Instruments on main switchboard

6

ammeters

2

volts

arranged 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 lamps connected to Bus Bars by D.P. Switches &amp; Fuses

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

Yes.

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

Yes.



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Cables: Single, twin, concentric, or multicore *Yes* are the cables insulated and protected as per Tables IV or V of the Rules. *Yes*

Fail of Pressure, state maximum between bus bars and any point of the installation under maximum load *8 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 *Hard Rubber Waterproof Type Cables run throughout & clipped to Perforated Sheet Steel Plating*

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 *Yes*

Refrigerated Chambers, if aughts 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 *Junction Boxes used for all joints*

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 *All metal portable fittings fitted to Steelwork of Ships are earthed with connector equivalent to working conductors*

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 *Emergency Generator Room "C" Dr. Cft. controlled from Emergency Switch board in same house Generator is direct coupled to Diesel 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*

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 *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 *Cast Iron*

are any fittings placed in spaces where inflammable or explosive dust or gases are liable to be present, if so, how are they protected *Gas-tight*

*Guarded Fittings*

*Guarded Locked Pendant*

*Hard Rubber Cables run in Galvanized Iron Conduit*

where are the controlling switches situated *Locally*

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*

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 *except vertical motors*

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.

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

MOTOR CONDUCTORS (CONTINUED)									
REF. NO.	DESCRIPTION	NB. OF MOTORS	EFFECTIVE OF EACH CONDUCTOR	COMPOSITION OF STRANDS	TOTAL MAXIMUM CURRENT	APPROXIMATE LENGTH LEAD & RETURN	INSULATED WITH	HOW PROTECTED	
	Harbour Winch (Ford)	1	0.25	37	0.093	285	90	Rubber	Hard Rubber
	" (Cft.)	1	0.25	37	0.093	285	90	"	"
	Capstans Cft.	2	0.5	61	0.103	465	120	"	"
	Reamers Fan 2 1/2 H.P.	2	0.003	3	0.036	9	225	"	"
	" 3 1/2 "	7	0.0045	7	0.029	13	210	"	"
	" 4 1/2 "	23	0.0070	7	0.036	17	270	"	"
	" 5 1/2 "	9	0.0070	7	0.036	22	270	"	"
	" 7 1/2 "	1	0.0145	7	0.052	30	300	"	"
	Boat Winches	20	0.06	19	0.064	46	390	"	"
	by Under Lovers L. Gear	4	0.0145	7	0.052	32	366	"	"
	" " "	4	0.0045	7	0.029	16	300	"	"
	Fire Service Pump	1	0.15	37	0.072	156	312	"	"
	Sleeping Lab. Oil Pump	2	0.0225	7	0.064	40	390	"	"
	Fuel Oil Pump	2	0.0225	7	0.064	40	237	"	"
	Purified Oil Pump	1	0.0045	7	0.029	16	195	"	"
	Unpurified " "	1	0.0045	7	0.029	16	180	"	"
	Lab. Oil Drain Pump	1	0.0045	7	0.029	16	50	"	"
	" " "	1	0.0045	7	0.029	16	414	"	"
	Auto. Turning Gear	8	0.0045	7	0.029	16	216	"	"
	Hot. S.W. Pump	2	0.0300	19	0.044	48	185	"	"
	Air & Lac. Pump	1	0.0145	7	0.052	36	183	"	"
	Auto. F.W. Lac. Pump	2	0.0145	7	0.052	35	171	"	"
	" S.W. " "	2	0.0300	19	0.044	50	210	"	"
	Fuel Oil Purifiers	7	0.003	3	0.036	10	50	"	"
	Lab. Oil	6	0.003	3	0.036	10	282	"	"
	F.W. Softening Plant	1	0.003	3	0.036	12	135	"	"
	W. 7. Boor 1 1/2 - 1	1	0.0225	7	0.064	6	1500	"	"
	" " 2	1	0.0225	7	0.064	6	1500	"	"
	" " 3	1	0.0225	7	0.064	4.2	1800	"	"
	" " 4	1	0.0225	7	0.064	4.2	1800	"	"
	" " 5	1	0.0225	7	0.064	4.2	1300	"	"
	" " 6	1	0.0225	7	0.064	4.2	1300	"	"
	" " 7	1	0.0225	7	0.064	4.2	1400	"	"
	" " 8	1	0.0225	7	0.064	4.2	1400	"	"
	Oil Vapour Fans	5	0.007	7	0.036	18	270	"	"
	Rubbish Hoist	1	0.003	3	0.036	9	180	"	"
	Engrs. Elevator	1	0.007	7	0.036	16	180	"	"
	Cabin " "	1	0.007	7	0.036	16	360	"	"
	Towrope " "	1	0.007	7	0.036	16	180	"	"
	Store Hoist	1	0.007	7	0.036	16	330	"	"
	Swimming Pool Cles.	1	0.007	7	0.036	16	120	"	"
	Refug. Cooler Fans	2	0.0045	7	0.052	38	210	"	"
	C.O. Compressors	2	0.5	61	0.103	290/195	75	"	"
	Brine Pump	3	0.0145	7	0.052	33	60	"	"
	" " "	1	0.01	7	0.044	30	60	"	"
	Refug. Cool. Pump	1	0.0145	7	0.052	36	180	"	"
	Re. Rocking Motor	1	0.01	7	0.044	18	510	"	"
	Deck Part. Hoist	1	0.007	7	0.036	6	180	"	"
	Officers & Cft.	1	0.007	7	0.036	6	180	"	"
	Emergency Cool. Pump	1	0.003	3	0.036	8	75	"	"
	" Water Cooler Fan	1	0.003	3	0.036	8	120	"	"
	Sounding Cl./C. P. & Star	2	0.003	3	0.036	5	270	"	"
	Drab Washing Cl./Cs.	2	0.003	3	0.036	5	120	"	"
	Painting Cl./C.	1	0.003	3	0.036	5	210	"	"
	Bacon Slicer	1	0.002	3	0.029	1	60	"	"
	Bough Chimer	1	0.003	3	0.036	16	96	"	"
	Bough Divider	1	0.002	3	0.029	6	75	"	"
	Drab Washing Cl./C.	1	0.003	3	0.036	5	120	"	"
	Potato Peeler	1	0.002	3	0.029	5	135	"	"
	Workshop Cl./C.	5	0.003	3	0.036	9	60	"	"
	" " "	3	0.002	3	0.029	2	60	"	"
	" " "	1	0.002	3	0.029	4	60	"	"
	" " "	1	0.003	3	0.036	10	60	"	"
	Roaster Motor	1	0.002	3	0.029	1	15	"	"
	Gymnasium Cl./C.	4	0.002	3	0.029	5	45	"	"
	Hobart Cliner	1	0.003	3	0.036	6	45	"	"
	" " "	2	0.002	3	0.029	2	45	"	"
	Silver cleaning Cl./C.	1	0.002	3	0.029	7	45	"	"
	Knife Cleaners	2	0.002	3	0.029	2	60	"	"



# 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 ...	4	500	222.	2250	160	Diesel Engine.	diesel oil	above 150°F
AUXILIARY ...						"	"	"
EMERGENCY ...	1	75.	222.	340.		"	"	"
ROTARY TRANSFORMER								

## LIGHTING AND HEATING CONDUCTORS.

Ref. No.	DESCRIPTION.	No. of Conductors.	Effective Area of each Conductor. Sq. Ins.	COMPOSITION OF STRAND.		Total Maximum Current. Ampères.	Approximate Length. (Lead and Return.) Feet.	Insulated with	HOW PROTECTED.
				No.	Diameter.				
	MAIN GENERATOR...	4 (2 PER POLE)	1.125"	(COPPER BAR)		2250.	72.	-	(Encased in steel framework)
	EQUALISER CONNECTIONS ...	1	1.125"	Do.		1125			
	AUXILIARY GENERATOR ...								
	EMERGENCY GENERATOR ...	2	0.6"	91.	.093"	340.	75	Rubber.	Hard Rubber
	ROTARY TRANSFORMER ...								
	AUXILIARY SWITCHBOARDS ...								
	MOTOR ROOM No. 0 ...	2 PER POLE	0.75	91.	.103.	920.	460	Rubber.	"
	AUX. MOTOR RM. L ...	1	0.75	91.	.103	409.	240.	"	"
	" " " M ...	1	1.0	127	.103	530.	270.	"	"
	ACCOMMODATION A1 & A2 ...	1	0.75	91.	.103	430.	450 EACH	"	"
	AUX. " " B & C ...	1	1.0	127	.103	450.	1000	"	"
	" " " D ...	1	1.0	127	.103	568.	690	"	"
	ACCOMMODATION E & F ...	1	1.0	127	.103	576.	600	"	"
	" " " F & G ...	1	0.75	91.	.103	350.	1140	"	"
	" " " G ...	1	1.0	127	.103	582.	900	"	"
	" " " H.1 ...	2	1.0	127	.103	1180.	300	"	"
	" " " H.2 ...	2	1.0	127	.103	1170.	300	"	"
	" " " J ...	1	1.0	127	.103	544.	780.	"	"
	(REFRIG) K ...	1	0.75	91.	.103.	460.	300	"	"
	WIRELESS ...	2	0.0100	7	.044"	7	1200	"	"
	SEARCHLIGHT ...	-	-	-	-	-	-	-	-
	MASTHEAD LIGHT ...	2	0.0020	3	.029.	0.18.	570.	"	"
	SIDE LIGHTS ...	2	0.0020	3	.029.	0.18.	120	"	"
	COMPASS LIGHTS ...	2	0.0020	3	.029.	0.27.	45	"	"
	POOP LIGHTS ...	-	-	-	-	-	-	-	-
	CARGO LIGHTS ...	2	0.06	19	.064.	25	1200	"	"
	ARC LAMPS ...	-	-	-	-	-	-	-	-
	HEATERS ...	-	-	-	-	-	-	-	-

## MOTOR CONDUCTORS.

Ref. No.	DESCRIPTION.	No. of Motors.	Effective Area of each Conductor. Sq. Ins.	COMPOSITION OF STRAND.		Total Maximum Current. Ampères.	Approximate Length. (Lead and Return.) Feet.	Insulated with	HOW PROTECTED.
				No.	Diameter.				
	BALLAST PUMP ...	2	0.15	37	.072"	131	216	Rubber.	Hard Rubber
	MAIN BILGE LINE PUMPS ...	2	0.10	19.	.083"	102	360	"	"
	GENERAL SERVICE PUMP ...	-	-	-	-	-	-	-	-
	EMERGENCY BILGE PUMP ...	1	0.10	19	.083"	92.	1200	"	"
	SANITARY PUMP ...	2	0.20	37	.083"	172.	129	"	"
	CIRC. SEA WATER PUMPS ...	4	0.30	37	.103"	216	201	"	"
	CIRC. FRESH WATER PUMPS ...	2	0.15	37	.072"	146.	369.	"	"
	AIR COMPRESSOR ...	-	-	-	-	-	-	-	-
	FRESH WATER PUMP ...	2	0.0145	7	.052"	37	201	"	"
	ENGINE TURNING GEAR ...	2	0.075	19	.072"	96.	291	"	"
	ENGINE REVERSING GEAR ...	-	-	-	-	-	-	-	-
	LUBRICATING OIL PUMPS ...	4	0.75	91	.103"	377	369	"	"
	OIL FUEL TRANSFER PUMP ...	2	0.0225	7	.064"	40.5	258.	"	"
	WINDLASS FORD ...	2	0.85	127	.093	800	50	"	"
	WINCHES, FORWARD ...	12	0.075	19	.072.	112.	300	"	"
	WINCHES, Aft " 5 TON ...	4	0.10	19	.082	144.	210	"	"
	STEERING GEAR—								
	(a) MOTOR GENERATOR ...	-	-	-	-	-	-	-	-
	(b) MAIN MOTOR ...	2	0.75	91	.103.	378	1200	"	"
	WORKSHOP MOTOR ...	-	-	-	-	-	-	-	-
	VENTILATING FANS ...								
	12 1/2 DIA. FAN ...	1	0.0020	3	.029	2	750	"	"
	10 " " ...	1	0.0020	3	.029	3	240	"	"
	12 1/2 " " ...	3	0.0020	3	.029	5	210	"	"
	15 " " ...	14	0.0030	3	.036	7	300	"	"
	17 1/2 " " ...	7	0.0030	3	.036	8	360	"	"
	20 " " ...	3	0.0030	3	.036	10	300	"	"
	30 " " ...	1	0.0100	7	.044	30	90	"	"
	35 " " ...	3	0.022	7	.064.	40.	300	"	"



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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 18 June 1930

#### COMPASSES.

Distance between electric generators or motors and standard compass 120 feet 28' to nearest motor.

Distance between electric generators or motors and steering compass 114 " 24' " " "

The nearest cables to the compasses are as follows:—

A cable carrying 25 Ampères 14 feet from standard compass 10 feet from steering compass.

A cable carrying 27 Ampères 14 feet from standard compass 10 feet from steering compass.

A cable carrying 30 Ampères 14 feet from standard compass 10 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.



Builder's Signature.

Date 17 June 1930

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 efficiently fitted on the vessel, tested with satisfactory results, and tried out under full working conditions, the materials and workmanship are good. In my opinion the vessel is now eligible for notation "Electric light."

It is submitted that  
this vessel is eligible for  
THE RECORD. Elec. Light.

J. 7/7/30

Total Capacity of Generators 2075 Kilowatts.

The amount of Fee ... £ 83 : 7. 6 26 6. 30

Travelling Expenses (if any) £ : 30 7. 30

R. Lee Jones  
Surveyor to Lloyd's Register of Shipping.

Committee's Minute FRI. 11 JUL 1930

Assigned

Electric light



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