

REPORT ON ELECTRIC FITTINGS.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL) 17 OCT 1934

Received at London Office

Date of writing Report

19

When handed in at Local Office

16/10/

1934

Port of

Belfast

No. in Survey held at

Belfast

Date, First Survey

24 May

Last Survey

2nd Oct.

1934

Reg. Book.

71859

on the

T.S.S. Asturias

(Number of Visits.....)

Tons

Gross

Net

Built at

Belfast

By whom built

Harland & Wolff

Yard No.

When built

1925

Owners

Royal Mail Line Ltd.

Port belonging to

Belfast

Electric Light Installation fitted by

Harland & Wolff

Contract No.

When fitted

1925

Is the Vessel fitted for carrying Petroleum in bulk

no.

System of Distribution

Two-wire Direct Current System

Pressure of supply for Lighting

206

volts, Heating

206

volts, Power

206

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 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. Machinery Room - Emergency generator in House, on C. Deck aft.

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 (except vertical motors).

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

Switchboard Platform. Fore end of Aux. Machinery 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

, is all insulation of high dielectric strength and of

permanently high insulation resistance

Yes

, if semi-insulating material is used, are all conducting parts insulated from the slab

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

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

bars

Yes

, individual fuses to voltmeter, pilot or earth lamp

Yes except that voltmeter & Pilot are protected by same fuse.

Yes

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

D.P. Overload & Reverse

Current Circuit Breaker with time limits & interlocked equalizer switch for each generator &

D.P. Overload Circuit Breaker or D.P. switch & D.P. fuses for each outgoing circuit

Instruments on main switchboard

37

ammeters

3

volts

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

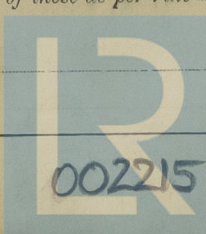
connected to bus-bars by D.P. Switches and Fuses.

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, ~~or multicore~~ Yes are the cables insulated and protected as per Tables IV or V of the Rules Yes

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

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 cable clipped to perforated steel plate & V.I.R. cable in wood casing

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 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 In specially constructed and insulated joint 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

Earthing Connections, state what earthing connections are fitted and their respective sectional areas All metal portable fittings not fitted to framework of ship are earthed with connection equivalent to 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 Emergency generator Direct coupled to Diesel engine situated in House on "C" Deck aft and controlled from Emergency Switchboard in same House

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 Yes

Cast Iron guarded fittings
are any fittings placed in spaces where inflammable or explosive dust or gases are liable to be present, if so, how are they protected Watertight guarded locked Pendants, how are the cables led

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 —

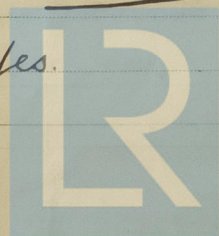
Motors, are their working parts readily accessible Yes, are the coils self-contained and readily removable for replacement Yes, are the brushes, brush holders, terminals and lubricating arrangements as per Rule Yes, are the motors placed in well-ventilated compartments in which inflammable gases cannot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



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MOTOR CONDUCTORS (CONT'D)

DESCRIPTION	NO OF MOTORS	CONDUCTORS		COMPOSITION OF STRAND		TOTAL MAXIMUM CURRENT AMPS		APPROXIMATE LENGTH LEAD & RETURN FEET	INSULATED WITH	HOW PROTECTED
		NO PER POLE	TOTAL EFFECT AREA PER POLE SQ. IN.	NO	O/A	IN CIRCUIT	RULE			
Dust Collector	2	1	0.150	37	.072	148	152	75	Rubber	Hard Rubber
Forced Draught Fan	3	1	0.250	37	.093	212	214	108	"	"
Induced Draught Fan	3	1	0.300	37	.103	236	240	92	"	"
Pre-Heater Motor	3	1	0.0045	7	.029	10	18.2	84	"	"
Water Extraction Pumps	4	1	0.040	19	.052	48	64	180	"	"
Oil Purifiers	6	1	0.003	3	.036	10	12	40	"	"
Boiler Blower	2	1	0.003	3	.036	10	12	150	"	"
Fuel Oil Pressure Pump	2	1	0.010	7	.044	28	31	60	"	"
Evaporator Feed Pump	2	1	0.003	3	.036	4	12	68	"	"
W.L. Door Pump Motor	1	1	0.040	19	.052	48	64	196	"	Lead Covered
45 Fans (Eng. Rm. Vent)	2	1	0.060	19	.064	60	83	180	"	Hard Rubber
40 Fans (Boiler ")	2	1	0.040	19	.052	48	64	140	"	"
Wash Pump (Combi. Dispens)	1	1	0.003	3	.036	9	12	30	"	"
Laundry Motor (6 B.H.P.)	1	1	0.0145	7	.052	24	37	60	"	"
" " (3 B.H.P.)	1	1	0.007	7	.036	12	24	64	"	"
Potato Peeler	3	1	0.003	3	.036	21	12	100	"	"
Dish Washer	4	1	0.003	3	.036	8	12	180	"	"
Dough Mixer	2	1	0.007	7	.036	12	24	120	"	"
Winking Machine	1	1	0.003	3	.036	42	12	60	"	"
Cake M. Disk	1	1	0.003	3	.036	21	12	160	"	"
Ice Cream Machine	1	1	0.003	3	.036	87	12	176	"	"
Emulsifier	1	1	0.003	3	.036	35	12	228	"	"
Coffee Mill	1	1	0.003	3	.036	15	12	76	"	"
Bacon Slicer	1	1	0.003	3	.036	15	12	36	"	"
Printing Machine	1	1	0.003	3	.036	47	12	148	"	"
Store Winch	1	1	0.007	7	.036	13.5	24	96	"	"
Store Hoist	1	1	0.007	7	.036	13.5	24	58	"	"
Pantry Hoist	1	1	0.007	7	.036	13.5	24	74	"	"
Clayton Fire Exting.	2	1	0.007	7	.036	16	24	112	"	"
Passenger Elevator	1	1	0.0145	7	.036	22	24	68	"	"
Stewart's Elevator	1	1	0.0145	7	.036	22	24	84	"	"
Riding Horse Motor	1	1	0.003	3	.036	4	12	176	"	"
Langdon Boat Fan 75 H.P.	12	1	0.0145	7	.052	30	37	98	"	"
" " " 10 H.P.	2	1	0.0225	7	.064	40	46.3	260	"	"
" " " 12 H.P.	2	1	0.040	19	.052	48	64	196	"	"
Capstan Motor	2	1	0.750	91	.103		922	120	"	"
Vent. Fans 45" 15 H.P.	2	1	0.060	19	.064	60	83	220	"	"
" " 40" 12 H.P.	2	1	0.040	19	.052	48	64	190	"	"
" " 35" 10 H.P.	5	1	0.040	19	.052	40	64	100	"	"
" " 30" 7.5 H.P.	5	1	0.0145	7	.052	30	37	110	"	"
" " 25" 4 H.P.	16	1	0.007	7	.036	16	24	96	"	"
" " 20" 2.5 H.P.	16	1	0.003	3	.036	10	12	140	"	"
" " 17.5" 2 H.P.	2	1	0.003	3	.036	8	12	226	"	"
" " 15" 1.75 H.P.	12	1	0.003	3	.036	7	12	100	"	"
" " 12 1/2" 1.25 H.P.	1	1	0.003	3	.036	5	12	96	"	"
Refrigerating Plant										
Brine Pumps (14 H.P.)	4	1	0.040	19	.052	56	64	120	"	Lead Covered
Brine Pump (6 H.P.)	1	1	0.007	7	.036	24	24	196	"	"
Water Circulator	1	1	0.0145	7	.052	32	37	144	"	"
C.O ₂ Motor (110 H.P.)	2	1	0.750	91	.103	440	461	86	"	"
Booster (C.O ₂ Plant)	1	1	0.750	91	.103	440	461	60	"	"
Hot W. L. Pump	1	1	0.007	7	.036	16	24		"	"
Hot W. L. Circ. Pump	2	1	0.045	7	.052	36	37		"	Lead



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PARTICULARS OF GENERATING PLANT.						
DESCRIPTION OF	No. of	RATED AT			DRIVEN BY	WHERE DRIVEN BY AN INTERNAL COMBUSTION ENGINE.
				HP		

Hot S.W. Pump	1	1	0.007	7	.036	16 ✓	24		
Aux. F.W. Circ. Pump	2	1	0.045	7	.052	36 ✓	37		Lead
Aux. Condenser Circ. Pump	1	1	0.007	7	.036	16 ✓	24		

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	370	206	1800	168	Diesel Engine.		
MAIN ...	1	360	206	1750	6009 750	Geared Turbine.		
EMERGENCY ...	1	75	206	340	400	Diesel Engine.		
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 Effective Area per Pole Sq. Ins.	No.	Diameter.	In Circuit.	Rule.			
MAIN GENERATOR ...	4	3.000	91	.103	1800 ✓	1844	40	Rubber	Lead Covered.
EQUALISER CONNECTIONS	4	3.000	91	.103				"	"
Turbo ^{Turbo} GENERATOR ...	4	3.000	91	.103	1750 ✓	1844	54	"	"
Equalizer ^{Equalizer} EMERGENCY GENERATOR	2	1.500	91	.103				"	"
EMERGENCY GENERATOR	1	0.600	91	.093	340 ✓	384	56	"	"
ROTARY TRANSFORMER { MOTOR GENERATOR...									
MAIN ...									
AUXILIARY SWITCHBOARDS	A Light 1	0.040	19	.052	55 ✓	64		"	Hard Rubber.
"	A Power 1	0.500	61	.103	262 ✓	332	280	"	"
"	B Light 1	0.060	19	.064	93 ✓	83		"	"
"	B Power 1	0.750	91	.103	558 ✓	461	360	"	"
"	C Light 1	0.060	19	.064	67 ✓	83		"	"
"	C Power 2	0.800	61	.093	303 ✓	576	540	"	"
"	D Light 1	0.400	61	.093	1049 ✓	288	420	"	"
"	D Power 2	0.500	91	.103	128 ✓	150		"	"
"	E Light 1	0.120	37	.064	531 ✓	461	256	"	"
"	E Power 1	0.750	91	.103	100 ✓	130		"	"
"	F Light 1	0.120	37	.064	467 ✓	461	232	"	"
"	F Power 1	0.750	91	.103	32 ✓	64		"	"
MAIN ...	G Light 1	0.400	61	.093	293 ✓	288	198	"	"
"	G Power 1	0.040	19	.052	44 ✓	64		"	"
"	H Power 2	2.0	127	.103	1384 ✓	1190	96	"	"
"	J	2	1.500	91	.103	780 ✓	922	84	"
"	K	1	.750	91	.103	500 ✓	461	89	"
"	L 1-2	1-2	1.200	91	.093	720 ✓	768	200	Lead Covered.
"	L 2	2		91	.100	1310 ✓	1206		"
WIRELESS ...	1	0.01	7	.044		31		"	"
SEARCHLIGHT ...									
MASTHEAD LIGHT ...	1	0.003	3	.036	0.18 ✓	12	564	"	Hard Rubber
SIDE LIGHTS ...	1	0.003	3	.036	0.18 ✓	12	114	"	"
COMPASS LIGHTS ...	1	0.003	3	.036	0.27 ✓	12	46	"	"
POOP LIGHTS ...									
CARGO LIGHTS ...									
ARC LAMPS ...									
HEATERS ...									

(Power circuits above include heating).

MOTOR CONDUCTORS.

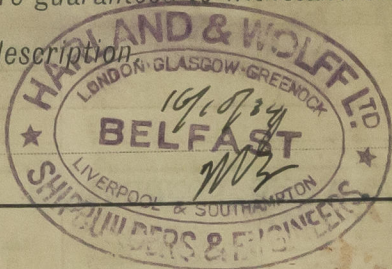
DESCRIPTION.	No. of Motors.	CONDUCTORS.		COMPOSITION OF STRAND.		TOTAL MAXIMUM CURRENT. AMPERES.		Approximate Length. (Lead and Return.) Feet.	Insulated with	HOW PROTECTED.
		No. Per Pole.	Total Effective Area per Pole Sq. Ins.	No.	Diameter.	In Circuit.	Rule.			
BALLAST PUMP ...	1	1	0.120	37	.064	128 ✓	130	40	Rubber	Hard Rubber.
MAIN BILGE PUMPS	2	1	0.075	19	.072	98 ✓	97	70	"	"
Bilge ^{Bilge} FIRE SERVICE PUMP	1	1	0.100	19	.083	112 ✓	118	230	"	"
EMERGENCY BILGE PUMP	1	1	0.100	19	.083	100 ✓	118	380	"	Lead Covered.
SANITARY PUMP ...	2	1	0.120	37	.064	115 ✓	130	120	"	"
Aug ^{Aug} CIRC. SEA WATER PUMPS	2	1	0.040	19	.052	48 ✓	64	160	"	"
Distiller ^{Distiller} & CIRC. FRESH WATER PUMPS	1	1	0.010	7	.044	24 ✓	31	46	"	Hard Rubber.
AIR COMPRESSOR ...	1	1	0.040	19	.052	56 ✓	64	260	"	"
FRESH WATER PUMP ...	2	1	0.0070	7	.036	18 ✓	24		"	Lead Covered.
ENGINE TURNING GEAR...	2	1	0.075	19	.072	96 ✓	97		"	Hard Rubber.
ENGINE REVERSING GEAR	3									
LUBRICATING OIL PUMPS	3	1	0.200	37	.083	160 ✓	184	170	"	"
OIL FUEL TRANSFER PUMP...	3	1	0.040	19	.052	48 ✓	64		"	"
WINDLASS ...	1	1	0.500	61	.103	520 ✓	534		"	"
WINCHES, FORWARD	1	1	0.500	61	.103	510 ✓	534		"	"
	4	1	0.400	61	.093	240 ✓	288		"	"
WINCHES, AFT	1	1	0.100	19	.083	92 ✓	118		"	"
STEERING GEAR—										
(a) MAIN ...										
(b) MAIN MOTOR ...	2	1	0.400	61	.093	260 ✓	288		"	"
WORKSHOP MOTOR ^{Lathe}	1	1	0.003	3	.036	6 ✓	12		"	"
VENTILATING FANS ^{Drill}	1	1	0.003	3	.036	8 ✓	12		"	"
Aug ^{Aug} M.T. Circ. Pump	2	1	0.040	19	.052	48 ✓	64		"	Lead Covered.
Diesel Oil Transfer Pump	2	1	0.003	3	.036	10 ✓	12		"	"
Aug ^{Aug} Turning Motors	4	1	0.007	7	.036	16 ✓	24		"	"
Lub. Oil Drain Pump	1	1	0.003	3	.036	6 ✓	12		"	Hard Rubber.
Hot S.H.T. Pump	1	1	0.007	7	.036	16 ✓	24		"	"
Aug ^{Aug} F.H.T. Circ. Pump	2	1	0.045	7	.052	36 ✓	37		"	Lead Covered.
Aug ^{Aug} Condenser Circ. Pump	1	1	0.007	7	.036	16 ✓	24		"	"



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 16/10/34

COMPASSES.

Distance between electric generators or motors and standard compass

66 feet to nearest motor

Distance between electric generators or motors and steering compass

60 " " " "

The nearest cables to the compasses are as follows:—

A cable carrying 40 Amperes 18 feet from standard compass 12 feet from steering compass.

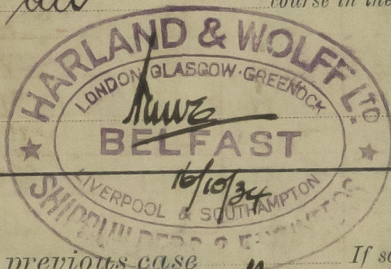
A cable carrying 25 Amperes 16 feet from standard compass 10 feet from steering compass.

A cable carrying 10 Amperes 16 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

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 examined. It is in accordance with approved plans and the Society's regulations. The insulation has been tested throughout and found to be in good order. Upon trial under full working conditions satisfactory results were obtained. In my opinion the vessel is eligible for notation "Electric light."

Noted
RJA
17/10/34

Total Capacity of Generators 1915 Kilowatts.

The amount of Fee ... £ : :
Travelling Expenses (if any) £ : :
When applied for, 19
When received, 19

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

1m. 9.30.—Transfer.
(The Surveyors are requested not to write on or below the space for Committee's Minute.)

Committee's Minute

Assigned

See Bel. Rpt on
alt. x N.B.



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