

REPORT ON ELECTRIC FITTINGS.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

Received at London Office

Date of writing Report 6. XI. 31 19... When handed in at Local Office... Port of NEWCASTLE-ON-TYNE

No. in Survey held at NEWCASTLE ON TYNE Date, First Survey... Last Survey... 19
Reg. Book. (Number of Visits.....)

28831 on the Q.S.E.V. MONARCH OF BERMUDA Tons {Gross
Net

Built at NEWCASTLE ON TYNE By whom built VICKERS ARMSTRONGS LTD. Yard No. 665 When built 1931

Owners FURNESS WITHEY & CO LTD Port belonging to LONDON

Electric Light Installation fitted by SUNDERLAND FORGE & ENG CO LTD Contract No. 665 When fitted 1931

Is the Vessel fitted for carrying Petroleum in bulk No

System of Distribution Double Wire

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

Direct or Alternating Current, Lighting Direct Power Propulsion - Alternating
Auxiliaries - Direct

If alternating current system, state frequency of periods per second 50

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 -

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 D.C. Main Generator Room - G 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, D.C. where placed Main Generator Room - G Deck

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, D.C. 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, 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, proportion of omnibus bars Yes, individual fuses to voltmeter, pilot or earth lamp Yes, connections of switches Yes

Main Switchgear, D.C. description of switchgear for each generator and each outgoing circuit, and arrangement of equalizer switches Triple pole 0/2 and

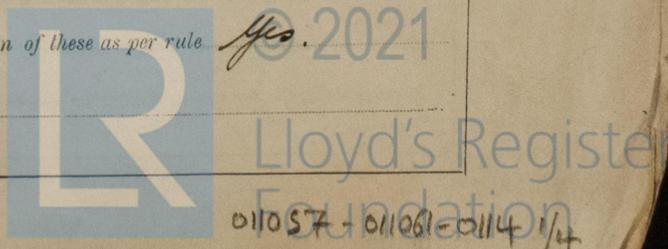
Reverse Current Circuit Breakers on each main Generator. Double pole 0/2 Circuit Breakers on large outgoing circuits. Double pole switches and fuses on small outgoing circuits.

Instruments on main switchboard 27 ammeters 2 voltmeters - 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 Lamp, Switch and fuse on each pole connected to earth

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



0110574-011061-0114/4

Cables: Single, twin, concentric, or multicore multicore 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 5.3 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 In room V.I.R in wood casing. Elsewhere lead covered a braided cable supported by galvanised iron saddles.

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 none made

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 —

—, are their connections made as per Rule —

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 driven by Diesel Engine on D Deck Aft.

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 Yes

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 Guards

—, 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 2, whether fixed or portable Portable, are their fittings as per Rule Yes

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 or Vertical, 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 Totally enclosed or Drip Proof, 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 —

DESCRIPTION	No OF MOTORS	CONDUCTORS		COMPOSITION OF STRAND		TOTAL MAX CURRENT		APPROX LENGTH LEAD AND RETURN	INSULATED WITH	HOW PROTECTED
		No PER POLE	TOTAL EFF AREA/POLE	No	DIA.	IN CIRCUIT	RULE			
SEWAGE COMPRESSOR	2	1	.12	37	.064	189	189	75	V.C.	L.C + B.
EVAPORATOR SLUDGE	1	1	.0045	7	.029	18	18.2	150	V.I.R.	L.C, A + B.
WORKSHOP.	1	1	.01	7	.044	21	31	105	do	do.
OIL PURIFIER	2	1	.003	3	.036	7	12	150	do	do
HEELING TANK	2	1	.0225	7	.064	32	46	90	do	do
W/T DOOR COMP	1	1	.01	7	.044	28	31	90	do	do
W/T DOOR PUMPS	2	1	.01	7	.044	21	31	90	do	do
ENG. RM. AUX BOARD.	—	4	2.4	91	.093	1776	2244	405	V.C.	L.C + B.
GENERATOR CIRC PUMPS	3	1	.20	37	.083	247	266	150	do	do
BILGE PUMP AFT	1	1	.06	19	.064	92	122	270	do	do
AUX. EXTRACTION PUMPS	3	1	.01	7	.044	29	31	165	V.I.R.	L.C, A + B.
PROPELLOR MOTOR VENT FAN	4	1	.06	19	.064	81	122	230	V.C.	L.C + B.
CARGO FRESH WATER	1	1	.06	19	.064	73	122	270	do	do
REFRIG MCHY	7	2	1.0	61	.103	644	972	50	do	do
ACC. VENT FANS FWD	46	2	.80	61	.093	490	834	500	do	do
do do AFT	61	2	.80	61	.093	590	834	600	do	do
BOAT WINCHES	10	1	.25	37	.093	354	407.5	500	do	do.
TURNING MOTORS	4	1	.01	7	.044	24	31	120	V.I.R.	L.C, A + B.
FORCED DRAUGHT FAN AFT	4	1	.06	19	.064	68	122	530	V.C.	L.C + B.
EMERGENCY SW/AD SUPPLY	—	1	.25	37	.093	204	309	500	do	do.
SHORE CONNECTION	—	1	.40	61	.093	400	417	220	do	do
STEERING GEAR	2	1	.10	19	.083	168	172	440	do	do
LIFTS + CRANES	10	1	.25	37	.093	250	309	240	do	do
LAUNDRY	10	1	.10	19	.083	135	172	450	do	do.
HOT WATER PUMPS ETC	4	1	.0225	7	.064	39	46	20	V.I.R.	L.C, A + B.
STURTEVANT COMP	1	1	.01	7	.044	27	31	320	do	L.C + B.
MOTOR ROOM VENT FAN	4	1	.0225	7	.064	27	46	570	do	do.
HEATING UP SET	1	1	.075	19	.072	122	141	430	V.C.	do.
EMERG. BOAT WINCH	2	1	.06	19	.064	118	122	930	do	do.
STEERING MOTOR PANIC	1	1	.0225	7	.064	30	46	50	V.I.R.	L.C, A + B.
LOW PRESSURE M/G	2	1	.06	19	.064	46	122	670	V.C.	L.C + B.
FOR PROPULSION PURPOSES.										
MAIN PROPULSION MOTORS	4	3	1.35	(3-3 core .45")		700	1400	350	H.T.-V.C.	L.C + B.
do do FIELDS	4	1	.2	37	.083	200	266	350	do	do.
ALTERNATORS	2	3	1.35	(3-3 core .45")		1400	55	55	do	do
do FIELDS	2	1	.6	91	.093	255	570	65	do	do
BOOSTER MAIN	3	1	.06	19	.064	105	122	45	do	do
do SUPPLY	3	1	.6	91	.093	255	570	45	do	do.

DESCRIPTION	CONDUCTORS		COMPOSITION OF STRAND.		TOTAL MAX CURRENT IN %.		APPROX LENGTH LEAD & RETURN FT.	INSULATED WITH	HOW PROTECTED
	No PER POLE	TOTAL EFF. AREA/POLE	No	DIA.					
SALOON HOTPLATES	1	.2	37	.083	180	266	200	V.C.	L.C + B.
do do	2	.2	19	.083	160	344	200	do	do
CREWS GALLEY	1	.25	37	.093	283	309	980	do	do
HEATING OF MAIN MOTORS	1	.06	19	.064	90	122	80	do	do
CARGO & MASTS	1	.0045	7	.029	4.5	18.2	750	V.I.R	L.C + B.
	1	.007	7	.036	7.3	24	900		
	1	.067	7	.036	6.2	24	735		
HOLD LIGHTING	1	.010	7	.044	13.0	31	350	do	do
ENGINEERS ACC ^M	1	.06	19	.064	106	122	180	V.C	do
OFFICERS ACC ^M	1	.06	19	.064	53	122	760	do	do
CREWS ACC ^M	1	.075	19	.072	124	141	360	do	do
SUN 'A' DKS PREF A	2	.20	19	.083	175	344	320	do	do
do do PREF B	2	1.5	91	.103	897	1328	320	do	do
'B' & 'C' DKS PREF A	2	.30	37	.072	275	444	310	do	do
do do PREF B	2	1.5	91	.103	882	1328	310	do	do
'D' & 'E' DKS PREF A	2	.24	37	.064	210	378	300	do	do
do do PREF B	2	1.0	61	.103	621	972	300	do	do
GALLEY GEAR	4	2.4	91	.093	1590	2244	270	do	do
GALLEY RANGE No 1	1	.75	91	.103	550	664	350	do	do
do do No 2	1	.75	91	.103	550	664	350	do	do
BAKERY	2	.40	37	.083	250	532	320	do	do
SUN DK EMERGENCY LIGHTING	1	.01	7	.044	7.0	31	520	V.I.R.	do
'A' DK do do	1	.01	7	.044	13	31	520	do	do
'B' DK do do	1	.01	7	.044	5.5	31	500	do	do
'C' DK do do	1	.01	7	.044	5.3	31	480	do	do
'D' DK do do	1	.01	7	.044	8.5	31	450	do	do
'E' DK do do	1	.01	7	.044	5.3	31	550	do	do
ENG. RM do do	1	.01	7	.044	4.5	31	320	do	do
NAVIGATION do do	1	.06	19	.064	40	122	950	V.C.	do
NAVIGATION PANIC LIGHTING	1	.0225	7	.064	10	46	950	V.I.R.	do
SUN DK do do	1	.01	7	.044	9	31	520	do	do
'A' DK do do	1	.01	7	.044	13	31	520	do	do
'B' DK do do	1	.01	7	.044	6	31	500	do	do
'C' DK do do	1	.01	7	.044	4.75	31	480	do	do
'D' DK do do	1	.01	7	.044	8.31	31	450	do	do
'E' DK do do	1	.01	7	.044	5.3	31	550	do	do
ENG. RM do do	1	.01	7	.044	4.3	31	320	do	do
BOAT LT. CLUSTERS PANIC	1	.04	19	.052	30	64	540	do	do



© 2021

Lloyd's Register Foundation

0114 3/4

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	750	220	3400	750	Steam Turbines		
AUXILIARY								
EMERGENCY	1	45	220	204	900	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	6	4.5	91	.103	3400	3984	168	V.C.	L.C. & B.
EQUALISER CONNECTIONS	3	2.25	91	.103	-	1992	84	do	do
AUXILIARY GENERATOR									
EMERGENCY GENERATOR	1	.15	37	.072	204	222	30	do	do
ROTARY TRANSFORMER									
MOTOR GENERATOR									
ENGINE ROOM No. 1	1	.0225	7	.064	40	46	520	V.I.R.	L.C., A & B.
ENGINE ROOM No. 2	1	.0225	7	.064	40	46	520	do	do
AUXILIARY SWITCHBOARDS									
ACCOMMODATION									
WIRELESS	1	.06	19	.064	-	122	920	V.C.	L.C. & B.
SEARCHLIGHT	1	.007	7	.036	9.9	24	200	V.I.R.	L.C. & B.
MASTHEAD LIGHT	1	.002	3	.029	.18	7.8	980	V.I.R.	L.C. & B.
SIDE LIGHTS	1	.002	3	.029	.18	7.8	90	do	do
COMPASS LIGHTS	1	.002	3	.029	.11	7.8	40	do	do
STEER LIGHT	1	.003	3	.036	.18	12	536	do	do
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 Effective Area per Pole Sq. Ins.	No.	Diameter.	In Circuit.	Rule.			
BALLAST PUMP	1	1	.06	19	.064	92	122	30	V.C.	L.C. & B.
MAIN BILGE LINE PUMPS	1	1	.06	19	.064	92	122	180	do	do
GENERAL SERVICE PUMP	1	1	.06	19	.064	92	122	30	do	do
EMERGENCY BILGE PUMP	1	1	.06	19	.064	63	122	930	do	do
SANITARY PUMP	2	1	.06	19	.064	92	122	30	do	do
CIRC. SEA WATER PUMPS	2	1	.6	91	.093	561	561	525	do	do
CIRC. FRESH WATER PUMPS										
AIR COMPRESSOR										
FRESH WATER PUMP	2	1	.0045	7	.029	18	18.2	75	V.I.R.	L.C., A & B.
ENGINE TURNING GEAR										
ENGINE REVERSING GEAR										
LUBRICATING OIL PUMPS	2	1	.010	7	.044	27.5	31	90	do	do
OIL FUEL TRANSFER PUMP	2	1	.06	19	.064	106	122	200	V.C.	L.C. & B.
WINDLASS	1	1	.6	91	.093	625	864-1/2hr.	230	do	do
WINCHES, FORWARD	7	2	1.5	91	.103	1346	1676-1hr.	860	do	do
WINCH	4	1	.06	19	.064	100	122	40	do	do
WINCHES, AFT	6	2	1.0	61	.103	944	1168-1hr.	400	do	do
CAPSTAN	2	1	.3	37	.103	360	470-1/2hr.	150	do	do
STEERING GEAR										
(a) MOTOR GENERATOR										
(b) MAIN MOTOR										
WORKSHOP MOTOR										
VENTILATING FANS										
PROPULSION SUPPLY SUB BOND No. 1	2	.8	61	.093	800	834	420	V.C.	L.C. & B.	
do do No. 2	2	.8	61	.093	800	834	420	do	do	
do do No. 3	2	.8	61	.093	800	834	400	do	do	
MAIN EXTRACTION PUMPS	2	1	.06	19	.064	97	122	180	do	do
ENGINE ROOM VENT FANS	4	1	.04	19	.052	40	64	380	V.I.R.	L.C., A & B.
FORCED DRAUGHT FANS FED	4	1	.06	19	.064	68	122	660	V.C.	L.C. & B.

Handwritten calculations and notes:

$$\begin{array}{r} 625 \\ 12500 \\ 131250 \end{array}$$

$$\begin{array}{r} 125 \\ 12500 \\ 126250 \end{array}$$

$$\begin{array}{r} 125 \\ 12500 \\ 126250 \end{array}$$

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.

SUNDERLAND FORGE & ENG.

Electrical Engineers.
 Co. Ltd. *W Park*

Date *5-11-31*

COMPASSES.

Distance between electric generators ~~and~~ and standard compass *226 ft.*
 Distance between electric generators ~~and~~ and steering compass *224 ft.*
 The nearest cables to the compasses are as follows:—
 A cable carrying *1/2* Ampères *2* feet from standard compass *2* feet from steering compass.
 A cable carrying *40* Ampères *10* feet from standard compass *16* 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 *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 *No* degrees on *any* course in the case of the standard compass, and *No* degrees on *any* course in the case of the steering compass.

Vickers Armstrongs Ltd.
J. M. Johnston

Builder's Signature. Date *5.11.31.*

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 fitted on ~~board~~ under special survey. The high tension winding of the alternators and motors with their control gear and cables have been pressure tested and found satisfactory. Insulation resistance tests have been taken with satisfactory results.*
The whole installation has been examined under full working conditions and found to be in order.
The materials and workmanship have been found to be good and sound.

(Description of Propulsion Control Gear given in separate report)

It is submitted that this vessel is eligible for THE RECORD. *Elec. Light*
R. C.
9/11/31

Total Capacity of Generators *3000* Kilowatts.

The amount of Fee ... *£ 228 : 00* When applied for.
 Travelling Expenses (if any) *£ See machinery report* When received.
 19

R. C. Clayton + J. S. Rankin
 Surveyor to Lloyd's Register of Shipping.

Committee's Minute *TUE. 10 NOV. 1931*

Assigned *Elec. Light*

