

Rpt. 13.

No. 12227

## REPORT ON ELECTRICAL EQUIPMENT.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

Received at London Office

Date of writing Report

19

When handed in at Local Office

15.10.1938

Port of

Belfast

No. in Survey held at

Belfast

Date, First Survey

30.10.1938

Last Survey

7.10.38

19

Reg. Book

(Number of Visits)

on the steel twin screw motor vessel "Waimanama"

Tons

Gross

Net

Built at

Belfast

By whom built

Harland &amp; Wolff Ltd

Yard No. 1004

When built 1938

Owners

Shaw Savill &amp; Albion Co Ltd

Port belonging to

Southampton.

Electric Light Installation fitted by

Harland &amp; Wolff Ltd

Contract No. 1004

When fitted 1938

Is the Vessel fitted for carrying Petroleum in bulk

No.

System of Distribution Two wire direct current

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 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

Yes

is an adjustable regulating resistance fitted in

series with each shunt field

Yes

Have certificates of test results for machines under 100 kw. been submitted and

approved

Yes

Have machines over 100 kw. been inspected by the Surveyors during manufacture and testing

Yes

Have certificates for generators under 100 kw. been submitted and approved

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 motor rm. port's starboard aux generator in room, shelter Dk, 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

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 platform aft. end of motor 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

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

Yes

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

No

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

D.P.O.L. Reverse current circuit breaker, time limits, interlocked equaliser switch &amp; triple pole switch.

D.P. circuit breakers on D.P. switch &amp; fuses outgoing circuits.

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

Yes

Instruments on main switchboard

4

ammeters

2

voltage

synchronising device for paralleling purposes. For compound machines is the ammeter connected on the opposite pole to equaliser connection

Yes

Earth Testing, state what means are provided at the main switchboard for indicating the state of the insulation of the system

Earth indicating lamps

Switches, Circuit Breakers and Fusible Cut-outs,

do these comply with the requirements of the Rules.

Yes

are the fusible cutouts of an approved type

Yes

have the reversed

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MOTOR CONDUCTORS (CONTINUED)										
DESCRIPTION	Nº. OF MOTORS	CONDUCTORS		COMPOSITION OF STRAND		TOTAL MAXIMUM CURRENT		APPROXIMATE LENGTH LEAD RETURN FEET	INSULATED WITH	HOW PROTECTED
		Nº. PER POLE	TOTAL EFFECT AREA PER POLE SQ. INS.	Nº.	DIA.	IN CIRCUIT	AMPS. RULE			
Quip S.W. line. Pump	1	1	.01	7	.044	30	31 ✓	70	Rubber	Hard Rubber
Quip F.W. line. Pump	1	1	.007	7	.036	20	24 ✓	70	"	"
Oil Purifiers	4	1	.0045	7	.029	11	18 ✓	81	"	"
Purifier Oil Pump	1	1	.0045	7	.029	8	18 ✓	81	"	"
Boiler Blower Fan	1	1	.003	3	.036	9	12 ✓	66	"	"
Vapour Extraction Fan	2	1	.007	7	.036	19	24 ✓	210	"	"
Boiler Feed Pump	1	1	.0045	7	.029	11	18 ✓	180	"	"
Lyfr. Lifting Gear	2	1	.01	7	.044	20	31 ✓	60	"	"
Range Blower	2	1	.002	3	.029	2	7 ✓	150	"	"
6.0 <sup>2</sup> Machines	3	1	1.00	127	.103	595	595 ✓	80	"	"
Refrig. S.W. line	2	1	.075	19	.072	83	97 ✓	100	"	"
Plunger Brine Pump	1	1	.0045	7	.029	15	18 ✓	126	"	"
Brine Pump	1	1	.0045	7	.029	12	18 ✓	126	"	"
Exhausting Fan	1	1	.002	3	.029	3	7 ✓		"	"
Brine line. Pump	4	1	.04	19	.052	64	64 ✓	80	"	"
6.0 <sup>2</sup> Recorder	1	1	.002	3	.029	2	7 ✓	30	"	"
8 H.P. Refrig. Fans	4	1	.0145	7	.052	32	37 ✓	100	"	"
6 H.P. Refrig. Fans	7	1	.01	7	.044	26	31 ✓	90	"	"
3.75 H.P. Refrig. Fans	6	1	.0045	7	.029	15	18 ✓	100	"	"
2.75 H.P. Refrig. Fans	11	1	.0045	7	.029	11	18 ✓	100	"	"
1.5 H.P. Refrig. Fans	3	1	.003	3	.036	6	12 ✓	93	"	"
1 H.P. Hallmark M/C	1	1	.002	3	.029	4	7 ✓	99	"	"
Malone compressor	1	1	.002	3	.029	4	7 ✓	30	"	"
<u>Workshop Motors</u>										
6 1/2 Lathe	1	1	.003	3	.036	9	12 ✓	60	"	"
9 1/2 Lathe	1	1	.007	7	.036	20	24 ✓	40	"	"
Grinding Machine	1	1	.003	3	.036	9	12 ✓	50	"	"
Drilling Machine	1	1	.003	3	.036	9	12 ✓	20	"	"



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current protection devices been tested under working conditions Yes are all fuses labelled as per Rule Yes

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 Yes are the cables insulated and protected as per Tables IV, V, X, XI, XII & XIII of the Rules Yes

If the cables are insulated otherwise than as per Rule, are they of an approved type Yes 6 F.W. pump

any point of the installation under maximum load Yes 6 F.W. pump

area of 0.004 square inch and above provided with soldering sockets Yes

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 Yes or waterproof insulating tape Yes

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 laid under machines or floorplates Yes if so, are they adequately protected Yes

Are cables in machinery spaces, galleys, lavatories, bathrooms and storerooms laid covered or run in conduit, lead, bunched floorplates & b. w. area, A. Release Yes

Support and Protection of Cables, state how the cables are supported and protected Refrigerated solid protected plating, 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, are the cables and fittings in accordance with the special requirements

Joints in Cables, state if any, and how made, insulated, and protected properly constructed & insulated junction 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 are "earthed" with connections equivalent to working conductor Yes 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 auxiliary generator direct coupled to diesel engine, in aux. dynamo room on shelter DK. controlled from switchboard in same room

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 are they ventilated as per Rule Yes

Fittings, are all fittings on weather decks, in storerooms 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 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 gaslight guarded pendants

hard rubber cables in galv. iron conduit

where are the controlling switches situated locally

are all fittings suitably ventilated Yes are all switches and lampholders constructed wholly of non-ignitable, non-absorbent materials Yes

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

Searchlight Lamps, No. of 1 whether fixed or portable Yes are their fittings as per Rule Yes

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 Generally 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 Yes 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 Yes have certificates for all motors for essential services been supplied and approved Yes

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 Yes 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 Yes are all fuses of the fitted cartridge type Yes are they of an approved type Yes

If portable lamps for use in dangerous spaces are supplied, are they of a self-contained, battery-fed flameproof type approved for use in dangerous spaces Yes

Spare Gear, if the vessel is for open sea service have spares been supplied as per Rule Yes are they suitably stored in dry situations Yes

DESCRIPTION OF GENERATOR	No. of	RATED AT				DRIVEN BY	WHEELS DRIVEN BY AN INTERNAL COMBUSTION ENGINE	
		Kilowatts	Volts	Amperes	Revs. per Min.		Post Head	First Post of Post
MAIN	4	300	222	1350	340	Diesel Engine		
AUXILIARY	1	25	222	113	775	Diesel Engine		
EMERGENCY								
ROTARY TRANSFORMER								

DESCRIPTION	No. of	CONDUCTORS		COMPOSITION OF STRAND		TOTAL MAXIMUM CURRENT		Approximate Length (Lead and Return) Feet	Insulated with	HOW PROTECTED
		No. per Pole	Total Nominal Area per Pole Sq. Ins.	No.	Diameter	Circuit	Rate			
MAIN GENERATOR	3	2-25	91	103	1350	1383	150		Rubber	Hard Rubber
REGULATOR CONNECTIONS	2	1-20	91	093		768	75		"	"
AUXILIARY GENERATOR	1	0-10	19	083	113	118	96		"	"
EMERGENCY GENERATOR										
ROTARY TRANSFORMER										
ENGINE ROOM										
BOILER ROOM										
WATER TIGHT GLANDS										
"A" Looking	1	06	19	064	33.5	83	570		"	"
"A" Looking	1	04	61	093	275.0	288	450		"	"
"A" Looking	1	03	19	044	44.1	59	150		"	"
"A" Looking	1	06	19	064	40.5	83	450		"	"
"B" Looking	1	02	37	085	154.7	184	270		"	"
"B" Looking	1	0225	7	064	37.7	46	75		"	"
"B" Winches	2	08	61	093	370	576	270		"	"
"B" Winches	1	04	61	093	293	288	675		"	"
"B" Winches	2	06	37	103	296	480	600		"	"
"B" Winches	1	05	37	093	199.6	214	750		"	"
"B" Winches	3	15	61	103	666	996	360		"	"
"B" Winches	3	30	127	103	1785	1785	270		"	"
"B" Winches	2	150	91	103	864	922	180		"	"
WIRELESS	1	01	7	044	31	25	315		"	"
SEARCHLIGHT										
MASTHEAD LIGHT	1	002	3	029	18	7.8	549		"	"
SIDE LIGHTS	1	002	3	029	27	7.8	80		"	"
COMPASS LIGHTS	1	002	3	029	18	7.8	24		"	"
POOD LIGHTS										
CARGO LIGHTS	1	04	7	052	16	37	531		"	"
HEATING	1	007	7	036	14.1	24	82		"	"
	1	022	7	064	16.3	46	507		"	"

DESCRIPTION	No. of	CONDUCTORS		COMPOSITION OF STRAND		TOTAL MAXIMUM CURRENT		Approximate Length (Lead and Return) Feet	Insulated with	HOW PROTECTED
		No. per Pole	Total Nominal Area per Pole Sq. Ins.	No.	Diameter	In Circuit	Rate			
BALLAST PUMP	1	1	075	19	072	83	97	345	Rubber	Hard Rubber
MAIN BILGE LINE PUMPS	2	1	022	7	064	44	46	240	"	"
GENERAL SERVICE PUMP	1	1	1	19	083	102	118	336	"	"
EMERGENCY BILGE PUMP										
SANITARY PUMP	1	1	1	19	083	102	118	336	"	"
CIBO. SEA WATER PUMPS	3	1	1	19	083	118	118	336	"	"
CIBO. FRESH WATER PUMPS	2	1	075	19	072	83	97	315	"	"
AIR COMPRESSOR	2	1	6	91	093	380	384	300	"	"
FRESH WATER PUMP	1	1	01	7	044	28	31	220	"	"
ENGINE TURNING GEAR	2	1	04	19	052	58	64	150	"	"
ENGINE REVERSING GEAR										
LUBRICATING OIL PUMPS	3	1	76	91	103	394	461	240	"	"
OIL FUEL TRANSFER PUMP	2	1	03	19	044	47	53	270	"	"
WINDLASS	1	1	4	61	093	298	288	285	"	"
WINCHES, FORWARD	8	1	2	37	083	222	184	100	"	"
Winches Mid	3	1	2	37	083	222	184	130	"	"
Winches Aft	9	1	2	37	083	222	184	100	"	"
STEERING GEAR										
(a) MOTOR GENERATOR										
(b) MAIN MOTOR	2	1	3	37	103	120	240	225	"	"
WORKSHOP MOTOR										
VENTILATING FANS										
Motors Room	5	1	004	7	029	8	18	300	"	"
Engs. Workshop	1	1	003	3	036	5	12	280	"	"
Refug. Room	1	1	003	3	036	9	12	180	"	"

Note: All wiring & cables in the vicinity of the wheelhouse & wireless room in lead covered cables.



The Electrical Equipment is installed in accordance with the approved plans.  
All Insulated Conductors are guaranteed to withstand the immersion and resistance tests specified in the Rules.  
The foregoing is a correct description.

Electrical Engineers.

Date



#### COMPASSES.

Minimum distance between electric generators or motors and standard compass 25 feet to type motor generator  
Minimum distance between electric generators or motors and steering compass 22 feet to type motor generator  
The nearest cables to the compasses are as follows:—  
A cable carrying 13 Amperes 4 feet from standard compass 6 feet from steering compass.  
A cable carrying 18 Amperes 8 feet from standard compass in ~~steering~~ steering compass. Pedestal.  
A cable carrying 18 Amperes in ~~steering~~ standard compass 8 feet from steering compass. Pedestal  
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, etc.) This installation has been fitted on board under special survey and in accordance with the approved plans and has been tested under full working conditions and found satisfactory.  
The materials and workmanship have been found to be good and sound.

Wid  
2/10/38

Total Capacity of Generators 1225 Kilowatts.

The amount of Fee ... £ 75 : 12 : 6 When applied for, 7-10-38  
B/Lt. A/C 37.16.3 }  
Ltr A/C 37.16.3 }  
Travelling Expenses (if any) £ : : When received, 2/11-38  
JMK/3/11

R-C. Clayton, Charles W. Hunter.  
Surveyor to Lloyd's Register of Shipping.

Committee's Minute TUE. 25 OCT 1938

Assigned See IFE machy rpt