

29 MAR 1944

No. 101940

Rpt. 13.

# REPORT ON ELECTRICAL EQUIPMENT.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

1 APR 1944

Received at London Office

Date of writing Report 29 MAR 1944 When handed in at Local Office 29 MAR 1944 Port of NEWCASTLE-ON-TYNE

No. in Survey held at WALLSEND-ON-TYNE Date, First Survey 26-7-43 Last Survey 22-2-1944 (Number of Visits 15) Reg. Book.

on the M.V. "PORT MACQUARIE" Tons Gross 9071.80 Net 5485.32

Built at WALLSEND-ON-TYNE By whom built SWAN HUNTER & WIGHAM RICHARDSON LTD Yard No. 1685 When built 1944

Owners PORT LINE LTD Port belonging to BRITISH

Electrical Installation fitted by SWAN HUNTER & WIGHAM RICHARDSON LTD Contract No. 1685 When fitted 1944

Is vessel fitted for carrying Petroleum in bulk - Is vessel equipped with D.F. YES E.S.D. YES Gy.C. YES Sub.Sig. -

Have plans been submitted and approved YES System of Distribution TWO WIRE INSULATED Voltage of supply for Lighting 220 Heating 220 Power 220 Direct or Alternating Current, Lighting D.C. Power D.C. If Alternating Current state periodicity - Prime Movers,

has the governing been tested and found as per Rule when full load is suddenly thrown on and off YES Are turbine emergency governors fitted with a trip switch as per Rule - Generators, are they compound wound YES, are they level compounded under working conditions YES,

if not compound wound state distance between generators - and from switchboard - Where more than one generator is fitted are they arranged to run in parallel YES are shunt field regulators provided YES Is the compound winding connected to the negative or positive pole

NEGATIVE Have machines over 100 kw. been inspected by the Surveyors during manufacture and testing YES Have certificates of test for machines under 100 kw. been supplied YES and the results found as per rule YES Are the lubricating arrangements and the construction of the generators as per rule YES

Position of Generators ENGINE ROOM No. 1 FORD No. 2 AFT PORT No. 3 FORD STAD, is the ventilation in way of generators satisfactory YES are they clear of inflammable material YES, if situated near unprotected combustible material state distance from same horizontally - and vertically - are the generators protected from mechanical injury and damage from water, steam and oil YES, are the bedplates and frames earthed YES, and the prime movers and generators in metallic contact YES Switchboards, where are main switchboards placed ENGINE ROOM PLATFORM FORD

are they in accessible positions, free from inflammable gases and acid fumes YES, are they protected from mechanical injury and damage from water, steam and oil YES, if situated near unprotected combustible material state distance from same horizontally - and vertically - what insulation material is used for the panels EBONY BINDANYD ENAMELLED FINISH, if of synthetic insulating material is it an Approved Type YES, if of semi-insulating material (slate or marble) are all conducting parts insulated therefrom as per Rule - Is the frame effectually earthed YES

Is the construction as per Rule YES, including accessibility of parts YES, absence of fuses on the back of the board YES, individual fuses to pilot and earth lamps, voltmeters, etc. YES locking of screws and nuts YES, labelling of apparatus and fuses YES, fuses on the "dead" side of switches YES Description of Main Switchgear for each generator and arrangement of equaliser switches 1200 AMPERE T/P

CIRCUIT BREAKERS WITH 2 O/L TRIPS, TIME LAGS, NO VOLT AND REVERSE CURRENT RELEASE WITH PREFERENCE TRIPPING CONTACTS

and for each outgoing circuit HEAVY DUTY CIRCUITS, D/P CIRCUIT BREAKERS WITH O/L AND SHUNT TRIPS, TIME LAGS LIGHT DUTY CIRCUITS, D/P QUICK BREAK KNIFE SWITCHES AND D/P FUSES

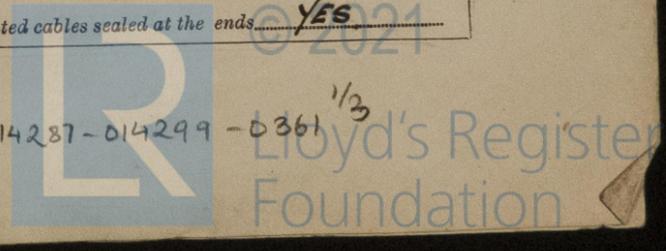
Are compartments containing switchboards composed of fire-resisting material or lined as per Rule YES Instruments on main switchboard 3 ammeters 3 voltmeters - synchronising devices For compound machines in parallel is the ammeter connected on the pole opposite to the equaliser connection YES Earth Testing, state means provided EARTH LAMPS CONNECTED TO E THROUGH SWITCHES AND FUSES

Switches, Circuit Breakers and Fuses, are they as per Rule YES, are the fuses an approved type YES, are all fuses labelled as per Rule YES If circuit breakers are provided for the generators, at what overload current did they open when tested 25% are the reversed current protection devices connected on the pole opposite to the equaliser connection YES, have they been tested under working conditions, and at what current did they operate 10% Joint Boxes, Section Boards and Distribution Boards, is the construction and position as per Rule YES

Cables, are they insulated and protected as per the appropriate Tables of the Rules YES, if otherwise than as per Rule are they of an approved type - state maximum fall of pressure between bus bars and any point under maximum load 4.4V, are the ends of all cables having a sectional area of 0.01 square inch and above provided with soldering sockets YES Are paper insulated and varnished cambric insulated cables sealed at the ends YES

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with insulating compound — or waterproof insulating tape YES. Are all the cable runs in accessible positions, not exposed to drip or accumulation of water or oil, high temperatures or risk of mechanical damage YES, are cables laid under machines or floorplates —, if so, are they adequately protected —. Are cables in machinery spaces, galleys, laundries, etc., lead covered YES or run in conduit —. State how the cables are supported and protected LEAD COVERED AND ARMOURED CABLES CLIPPED TO SOLID STEEL TRAY PLATES.

LEAD COVERED CABLES CLIPPED TO WOOD GROUNDS IN ACCOMMODATION.

Are all lead sheaths, armouring and conduits effectually bonded and earthed YES. Refrigerated chambers, are the cables and fittings as per Rule YES.

Are all cables passing through decks and watertight bulkheads provided with deck tubes or watertight glands YES, where unarmoured cables pass through beams, etc., are the holes effectively bushed YES and with what material LEAD. Alternative Lighting, are the groups of lights in the engine and boiler rooms arranged as per Rule YES. Emergency Supply, state position —.

and method of control —. Navigation Lamps, are they separately wired YES controlled by separate double pole switches YES and fuses YES. Are the switches and fuses in a position accessible only to the officers on watch YES, is an automatic indicator fitted YES. Secondary Batteries, are they constructed and fitted as per Rule YES, are they adequately ventilated YES.

what is the battery capacity in ampere hours 80 AMP/HOUR AVAILABLE WITH 80 AMP/HOUR BATTERY AS STANDBY.

Fittings, are all fittings on weather decks, in stokeholds and engine rooms and wherever exposed to drip or condensed moisture, weatherproof YES. Are fittings installed where readily combustible materials or inflammable or explosive dust or gases are likely to be present —, if so, how are they protected —.

and where are the controlling switches fitted —, are all fittings suitably ventilated YES, are all fittings and accessories constructed and installed as per Rule YES. Searchlight Lamps, No. of —, whether fixed or portable —.

are their fittings as per Rule —. Heating and Cooking, is the general construction as per Rule YES, are the frames effectually earthed YES. Are heaters in the accommodation of the convection type YES. Motors, are all motors constructed and installed as per Rule YES and placed in well-ventilated compartments in which inflammable gases cannot accumulate and free from damage from water, steam and oil YES, if situated near unprotected combustible material state minimum distance from same horizontally — and vertically —. Are motors coupled to oil fuel transfer and unit pressure pumps capable of being stopped from a position accessible in the event of fire in the pump compartment YES.

Have motors of 100 BHP and over been inspected by the Surveyors during manufacture and testing YES. Have certificates of test for motors under 100 BHP intended for essential services been supplied and the results found as per Rule YES. Control Gear and Resistances, are they constructed and fitted as per Rule YES. Lightning Conductors, where required are they fitted as per Rule —. Ships carrying Oil having a Flash Point less than 150° F. Have all the special requirements of the Rules for such ships been complied with —, are all fuses of the cartridge type —.

are they of an approved type —. Are the fittings for pump rooms, 'tween deck spaces, etc., in accordance with the special requirements for such ships —. Are the cables lead covered as per Rule YES. Spare Gear, if the vessel is for open sea service have spares been provided as per Rule YES, are they suitably stored in dry situations YES. Insulation Tests, has the insulation resistance of all circuits and apparatus been tested and found satisfactory YES.

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 ...	3	245	220	1114	500	DIESEL		
EMERGENCY ...								
ROTARY TRANSFORMER								

GENERATOR CABLES.

DESCRIPTION.	KILOWATTS.	CONDUCTORS.		MAXIMUM CURRENT IN AMPERES.		APPROX. LENGTH (lead plus return feet).	INSULATED WITH.	HOW PROTECTED.
		No. in Parallel Per Pole.	Sectional Area or No. and Dia. of Strands. Sq. ins. or sq. mm.	In the Circuit.	Rule.			
MAIN GENERATOR ...	3x245	2	91/093	1114	1248	90	V.C.	L.C. & A.
" " EQUALISER ...		1	91/093		624	45	V.C.	L.C. & A.
EMERGENCY GENERATOR ...								
ROTARY TRANSFORMER: MOTOR ...								
" " GENERATOR ...								

M/V. "FORT MACQUARIE"



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Lloyd's Register Foundation

No. No.

M/V. "PORT MACQUARIE"

NEWCASTLE-ON-TYNE, NO 10940

CREW'S ACCOMM. SECTION BOARD AFT.  
GALLEY SECTION BOARD

1	37/072	136	182	80	V.I.R	L.C.A=B
1	19/088	171	191	110	V.C.	L.C.A.

WIRELESS ... LIGHTING AND HEATING, ETC., CABLES.

DESCRIPTION	H.K.W.	No.	Code	Wattage	Volts	Amperes	Notes
SEAMENS MESS HOT PLATE							
GREASERS	1.5"	1	7/036	18	24	50	
P.O's	1.5"	1	3/036	6.8	10	115	
GUNNERS	4"	1	3/036	6.8	10	100	
" WASH BOILER	4"	1	7/036	18	24	65	
SEAMENS	4"	1	7/036	18	24	40	
GREASERS	4"	1	7/036	18	24	30	
P.O's	4"	1	7/036	18	24	100	
OIL FUEL HEATER	2"	1	7/036	18	24	80	
GALLEY BOILER	4"	1	7/029	9	15	220	
PANTRY	3"	1	7/036	18	24	210	
ENG. OFFICERS WASH BOILER	2-3"	1	7/029	13.6	15	35	
GALLEY OIL HEATERS	1.5"	1	7/029	13.6	15	60	
GUNNERS MESS BOILER	3"	1	3/036	6.8	10	20	
			7/029	13.6	15	95	

ALL IMPORTANT MOTORS TO BE ENUMERATED. MOTOR CABLES.

No.	B.H.P.	Code	Wattage	Volts	Amperes	Notes
1	46	19/083	174	199	40	V.C. L.C.A. (1 HOUR RATE)
2	65	37/072	270	303	90	V.C. L.C.A. (1/2 " )
3	65	37/072	270	303	90	V.C. L.C.A. ( " )
4	65	37/072	270	303	90	V.C. L.C.A. ( " )
5	35	37/072	270	303	90	V.C. L.C.A. ( " )
6	35	19/064	142	151	105	V.C. L.C.A. ( " )
7	35	19/064	142	151	120	V.C. L.C.A. ( " )
8	35	19/064	142	151	90	V.C. L.C.A. ( " )
9	35	19/064	142	151	90	V.C. L.C.A. ( " )
10	35	19/064	142	151	90	V.C. L.C.A. ( " )
11	35	19/064	142	151	160	V.C. L.C.A. ( " )
12	65	37/072	270	303	150	V.C. L.C.A. ( " )
13	65	37/072	270	303	105	V.C. L.C.A. ( " )
14	35	19/064	142	151	90	V.C. L.C.A. ( " )
15	35	19/064	142	151	90	V.C. L.C.A. ( " )
16	40	19/083	155	199	200	V.C. L.C.A. ( " )
17	40	19/083	155	199	180	V.C. L.C.A. ( " )
18	40	19/083	155	199	150	V.C. L.C.A. ( " )
ALTERNATE SUPPLY FROM NO. 6 AUX POWER SWITCH BOARD.						
19	6 1/4	7/044	25	31	180	V.I.R. L.C.A.
20	8 1/4	7/052	33	37	150	V.I.R. L.C.A.
21	8 1/4	7/052	33	37	135	V.I.R. L.C.A.
22	8 1/4	7/052	33	37	200	V.I.R. L.C.A.
23	8 1/4	7/052	33	37	90	V.I.R. L.C.A.
24	6 1/4	7/044	25	31	240	V.I.R. L.C.A.
25	6 1/4	7/044	25	31	200	V.I.R. L.C.A.
26	6 1/4	7/044	25	31	240	V.I.R. L.C.A.
27	6 1/4	7/044	25	31	240	V.I.R. L.C.A.

No. 11 FAN. NO. 4 HOLD PORT	1	6 1/4	1	7/044	25	31	250	V.I.R	L.C.A
No. 12 " " STAD	1	6 1/4	1	7/044	25	31	250	V.I.R	L.C.A

MAIN DISTRIBUTION CABLES.

DESCRIPTION.	CONDUCTORS.		MAXIMUM CURRENT IN AMPERES.		APPROX. LENGTH (lead plus return feet).	INSULATED WITH.	HOW PROTECTED.
	No. in Parallel Per Pole.	Sectional Area or No. and Dia. of Strands. Sq. ins. or sq. mm.	In the Circuit.	Rule.			
AUX. SWITCHBOARDS AND SECTION BOARDS							
1 AUX POWER BOARD							
2 " " } FORD. POWER	1	37.083	238	296	262	V.C.	L.C.+A
3 " " } RING MAIN	2	61.093	688	928	970	V.C.	L.C.+A
4 " " } AFT. POWER							
5 " " } RING MAIN							
6 " " } REFRIGERATORS	2	61.093	400	928	1470	V.C.	L.C.+A
1 ENGINE ROOM SECTION BOARD.							
2 " " "	1	19.064	132	135	80	V.C.	LCA+B
3 " " "	1	19.083	96	191	200	V.C.	"
MIDSHIP LIGHTING SECTION BOARD							
ENGINE ROOM	1	7.064	45	46	160	V.I.R.	LCA+B
REFRIG. " "	1	7.044	17	31	60	V.I.R.	LCA+B
	1	7.036	18.3	24	130	V.I.R.	L.C.+A

LIGHTING AND HEATING, ETC., CABLES.

DESCRIPTION.	No.	CONDUCTORS.	MAXIMUM CURRENT IN AMPERES.	APPROX. LENGTH	INSULATED WITH.	HOW PROTECTED.	
WIRELESS	1	7.064	4	46	350	V.I.R. L.C.+A	
NAVIGATION LIGHTS	1	7.029	3.3	15	360	V.I.R. L.C.A+B	
LIGHTING AND HEATING							
CREWS HEATING CIRCUITS							
ENGRS.	(3)	19.064	76.76	83	100/120	V.I.R. L.C.	
" " "	(2)	19.083	86/64	118	90/140	V.I.R. L.C.	
" LIGHTING	(1)	19.052	57	64	120	V.I.R. L.C.	
OFFICERS " "	(3)	7.029	3/6/11.	15	9/20/20	V.I.R. L.C.	
WINDLASS ROOM LIGHTING	(2)	7.029	13/5	15	60/80	V.I.R. L.C.	
FORD. CARGO LANTERNS	(2)	7.029	3.5	15	300	V.I.R. L.C.A+B	
AFT. " "	1	7.029	14/10	31	200/360	V.I.R. LCA+B	
CRAW'S ACCOMM. LIGHTING	1	7.044	10	31	200	V.I.R. LCA+B	
ENGINE ROOM " "	2	7.064	13	46	640	V.I.R. LCA+B	
REFRIG. " "	2	7.029	12/6	15	170/250	V.I.R. L.C.A+B	
ENGINE " LANTERNS	1	3.029	4.5	5	220/360	V.I.R. L.C.A+B	
EMERGENCY LIGHTING PANEL	1	7.036	14	24	80	V.I.R. L.C.+A	
GYRO COMPASS.	1	7.036	20	27	60	V.I.R. L.C.+A	
	1	7.036	12	24	320	V.I.R. L.C.+A	

MOTOR CABLES.

ALL IMPORTANT MOTORS TO BE ENUMERATED.	No.	B.H.P.	CONDUCTORS.	MAXIMUM CURRENT IN AMPERES.	APPROX. LENGTH	INSULATED WITH.	HOW PROTECTED.
C.O2 COMPRESSORS	2	180	1	91.103	660	438	120/20 V.C. L.C.+A
BRINE PUMPS	3	12	1	19.052	48	64	100/100 V.I.R. L.C.A+B
BRINE PUMP	1	3 3/4	1	7.036	16.5	24	120 V.I.R. L.C.+A
ENG. ROOM COMPRESSORS	2	67	1	37.083	252	296	200/200 V.C. LCA+B
PISTON COOLING PUMPS	2	68	1	37.083	257	296	220 V.C. L.C.+A
SALT WATER CIRC PUMP	1	50	1	37.072	189	246	160 V.C. L.C.+A
BALLAST PUMP	1	50	1	37.072	189	246	140 V.C. L.C.+A
GENERAL SERVICE PUMP	1	27	1	19.083	105	118	160 V.I.R. LCA+B
FORCED LUB. OIL PUMPS	2	20	1	19.064	44	83	240/240 V.I.R. LCA+B
REFRIG. CIRC. PUMPS	2	20	1	19.064	44	83	10/10 V.I.R. LCA+B
BILGE PUMP	1	20	1	19.064	44	83	150 V.I.R. LCA+B
TURNING MOTOR	1	18	1	19.064	40	83	140 V.I.R. LCA+B
SANITARY PUMP	1	15	1	19.052	59	64	150 V.I.R. LCA+B
GENERATOR S.W. PUMP	1	6	1	7.044	25	31	160 V.I.R. LCA+B
FRESH WATER PUMP	1	6	1	7.044	25	31	160 V.I.R. LCA+B
WORKSHOP MOTOR	1	5	1	7.036	21	24	110 V.I.R. LCA+B
ENG. ROOM VENT FANS	2	15	1	19.052	59	64	120 V.I.R. LCA+B
" CRANE	3	3	1	7.029	14	15	130 V.I.R. LCA+B
OIL FUEL TRANSFER PUMPS	2	7 1/2	1	7.044	30	31	45 V.I.R. LCA+B
BOILER OIL " "	1	1 1/4	1	3.036	6	10	130 V.I.R. L.C.+A
OIL FUEL BLOWER	1	5	1	7.036	21	24	160 V.I.R. L.C.+A
FUEL OIL PURIFIERS	3	3	1	7.029	14	15	60 V.I.R. L.C.+A
LUB. " "	1	3	1	7.029	14	15	70 V.I.R. L.C.+A
GUIDE CIRC. PUMP	1	3	1	7.029	14	15	140 V.I.R. L.C.+A
CYLINDER VALVE PUMPS	2	3	1	7.029	14	15	130 V.I.R. L.C.+A
PRIMING PUMP	1	1 1/2	1	3.036	4	10	80 V.I.R. L.C.+A
No.11 FAN. No.4 HOLD PORT	1	6 1/4	1	7.044	25	31	250 V.I.R. LCA+B
No.12 " " STOP	1	6 1/4	1	7.044	25	31	250 V.I.R. L.C.+A

The Electrical Equipment is installed in accordance with the approved plans and the requirements of the Rules.  
 All Insulated Conductors are guaranteed to have been tested at the maker's works as specified in the Rules.  
 The foregoing is a correct description.

For  
 SWAN, HUNTER, & WIGHAM RICHARDSON LTD.

*W. H. H. H.*

Electrical Engineers.

Date *28th March 44*

COMPASSES.

Minimum distance between electric generators or motors and standard compass..... *68 FEET*

Minimum distance between electric generators or motors and steering compass..... *64 FEET*

The nearest cables to the compasses are as follows:—

A cable carrying ..... Ampères ..... feet from standard compass ..... feet from steering compass.

A cable carrying ..... Ampères ..... feet from standard compass ..... 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 ..... *NIL* ..... degrees on ..... *EVERY* ..... course in the case of the

standard compass, and ..... *NIL* ..... degrees on ..... *EVERY* ..... course in the case of the steering compass.

SWAN, HUNTER, & WIGHAM RICHARDSON LTD.

*Wm. Juchie*

Builder's Signature.

Date *28-3-44*

Is this installation a duplicate of a previous case..... *-* ..... If so, state name of vessel..... *-*

Plans. Are approved plans forwarded herewith..... *-* ..... If not, state date of approval..... *16-4-43*

Certificates. Are certificates of test for motors engaged on essential services and generators forwarded herewith..... *-*

General Remarks (State quality of workmanship, whether insulation tests, etc., have been made, opinions as to class, etc.) *The Electrical*

*Equipment of this vessel has been installed in conformity with the Society's Rules and Regulations, and the arrangements are in accordance with, or equal to those shown on the approved drawings.*

*Materials used are of good quality and the workmanship is satisfactory.*

*On completion, the insulation resistance of all circuits was good, and the generators operated under normal conditions, with satisfactory results.*

*The Equipment, as installed is, in my opinion, suitable for a classed vessel.*

*Noted*

*Thur*

*17.4.44*

Total Capacity of Generators..... *735* ..... Kilowatts.

The amount of Fee ..... *Sunderland £ 63 : 7/6* :  
 Travelling Expenses (if any) ..... *Louisa £ 1 : 5/6* :  
 When applied for, *30 MAR 1944*  
 When received, .....19.....

*A. A. Diment*  
 Surveyor to Lloyd's Register of Shipping.

Committee's Minute ..... *FRI. 21 APR 1944* .....

Assigned..... *see minute on J.E. Rpt.* .....

5m. 4.18.—Transfer. (MADE AND PRINTED IN ENGLAND.)  
 (The Surveyors are requested not to write on or below the space for Committee's Minute.)

