

REPORT ON ELECTRICAL EQUIPMENT.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

Received at London Office...

22 SEP 1941

Date of writing Report... 2nd Sept 1941 When handed in at Local Office... 19 Port of... Belfast
 No. in Survey held at... Belfast Date, First Survey... 28 April 1941 Last Survey... 30th Aug 1941
 Reg. Book. (Number of Visits... 2)
 on the M. V. "Derwentdale" Tons {Gross 8399
 Net 4910
 Built at... Belfast By whom built... Messrs Harland & Wolff Ltd Yard No. 1052 When built... 1941
 Owners... The Admiralty Port belonging to... London
 Electrical Installation fitted by... Messrs Harland & Wolff Ltd Belfast Contract No. 1052 When fitted... 1941
 Is vessel fitted for carrying Petroleum in bulk... Yes Is vessel equipped with D.F. Yes E.S.D. Yes Gy.C. Yes Sub.Sig. No

Have plans been submitted and approved... yes System of Distribution... two wire system Voltage of supply for Lighting... 110
 Heating... 110 Power... 225 Direct or Alternating Current, Lighting... D.C. Power... D.C. If Alternating Current state periodicity... — Prime Movers,
 (for Gantry Circuits)
 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... 225 V yes 110 V no, 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... none Have certificates of
 test for machines under 100 kw. been supplied... yes 110 V 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... 110 volt starboard side of motor Rm 225 volt Port side of
Motor Rm Middle Platform level 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... 110 volt on platform starboard side of motor room
225 volt Port side of motor room, middle platform level
 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... Interohm, 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... 110 volt 300 amp D.P
change-over-switch with 250 amp fuses. 225 volt 400 amp Triple pole circuit
breaker (centric pole equaliser) with off, time lag & reverse current
 and for each outgoing circuit... 110 volt D.P change-over-switches with fuses.
225 volt Double pole knife switches with fuses
 Are compartments containing switchboards composed of fire-resisting material or lined as per Rule... yes Instruments on main switchboard... 225V - 2
225V - 2 ammeters... 110V - 2 voltmeters... none 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... two earth lamps with two way & off switch
 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... 500A, 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... 40A 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... 5.25, are the ends of all cables having a sectional area of 0.04
 square inch and above provided with soldering sockets... yes Are paper insulated and varnished cambric insulated cables sealed at the ends... none

with insulating compound. — or waterproof insulating tape. — 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. no, if so, are they adequately protected. — Are cables in machinery spaces, galleys, laundries, etc., lead covered. L.S.A.B. or run in conduit. — State how the cables are supported and protected. Mains (110 Volt) L.S.A.B. run in steel channel under fore & aft gangways. Duplicate mains, L.S.A.B. in plumbers piping. Machinery spaces L.S.A.B. on plating. Accommodation L.C. Tween deck spaces & pump rooms L.C. in conduit. Mains (225 Volt) L.C. in plumbers piping.

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 effectually bushed. yes and with what material. lead sheet. Alternative Lighting, are the groups of lights in the engine and boiler rooms arranged as per Rule. — 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. 120

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. yes, if so, how are they protected. flameproof fittings (in Pump room entrances)

and where are the controlling switches fitted. in accommodation, are all fittings suitably ventilated. yes, are all fittings and accessories constructed and installed as per Rule. yes. Searchlight Lamps, No. of. two, whether fixed or portable. fixed signalling projectors, are their fittings as per Rule. yes. Heating and Cooking, is the general construction as per Rule. yes, are the frames effectually earthed. yes, are heaters in the accommodation of the connection type. none. 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. none. 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. yes. 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. yes, are all fuses of the cartridge type. yes are they of an approved type. yes. Are the fittings for pump rooms, tween deck spaces, etc., in accordance with the special requirements for such ships. yes. 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	2	25	110	227	600	Steam Engine	—	—
GANTRY	2	75	225	341	1000	Diesel Engine	Fuel oil	over 150° F
ROTARY TRANSFORMER						(Machines supplied by Admiralty)		

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	25	1	37/103	227	240	45	Rubber	L.S.A.B.
" " EQUALISER								
GANTRY GENERATOR	75	1	91/103	341	461	35	Rubber	L.C.
ROTARY TRANSFORMER: MOTOR								
" " GENERATOR								

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							
Section Box No 1 Fore & Amidship Ltg	1	37/064	92	130	620	Rubber	L.S.A.B.
No 2 Portable Connections	1	19/052	18	64	180	"	"
No 3 Ltg Lighting	1	19/052	35.5	64	168	"	"
No 4 Motor Rm Lighting	1	19/044	47	53	90	"	"
No 5 Vent Fans	1	19/064	40	83	150	"	"
Dist. Box M.I. Motor Room Motors	1	19/064	42	83	250	"	"
Signalling Projectors	1	19/064	48	83	620	"	"
Depausing Panel fitted to bus-bar on main switchboard. D.P. Change over switch incorporated.							
220 Volt Switchboard for Gantry Gear	1	91/103	341	461	35	"	L.C.

LIGHTING AND HEATING, ETC., CABLES.

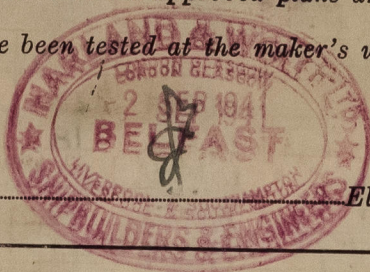
WIRELESS (duplicated)	1	19/064	23	83	675	Rubber	L.S.A.B.
NAVIGATION LIGHTS (duplicated)	1	7/029	2	15	675	"	"
LIGHTING AND HEATING Dist. Box 1. Nav. Ltg.	1	7/052	33	37	90	"	L.C.
Dist. Box No 2 Lighting Accom.	1	7/029	9.5	15	50	"	"
No 3 " "	1	7/044	20	31	28	"	"
No 4 " "	1	7/036	15	24	28	"	"
No 5 Portable Connections	1	7/044	11.5	31	460	"	LSAB
No 6 Ltg for 2 Gun Heaters	1	7/044	38	31	320	"	"
No 7 Portable Connections	1	7/029	6.5	15	50	"	L.C.
No 8 Lighting Accom.	1	7/044	25	31	195	"	"
No 9 " "	1	7/044	22.5	31	30	"	"
No 10 " Motor Room	1	7/036	13	24	140	"	LSAB
No 11 " "	1	7/029	8	15	20	"	"
No 12 " "	1	7/029	8.5	15	140	"	"
No 13 " "	1	7/029	5.5	15	20	"	"
No 14 " "	1	7/029	5	15	150	"	"
No 15 " "	1	7/029	7.5	15	30	"	"

MOTOR CABLES.

ALL IMPORTANT MOTORS TO BE ENUMERATED.	No.	B.H.P.						
Turning motor.	1	10	1	19/064	80	83	120	Rubber L.S.A.B.
Workshop motor.	1	3	1	7/044	26	31	195	" "
F.O. Purifier.	1	3	1	7/044	25.1	31	180	" "
F.O. Pump.	1	1.75	1	7/029	15.9	15	165	" "
L.O. Purifier.	1	2.5	1	7/036	21.3	24	180	" "
Supply Fan No 1	1	3	1	7/064	26	41	480	" "
Supply Fan No 2	1	3	1	7/044	26	31	80	" "
Decontamination Fan	1	0.125	1	3/036	2	10	75	" L.C.
Battery Room Fan	1	0.125	1	3/036	2.1	10	85	" "
1 1/2" Exhaust Fan	1	0.5	1	3/036	5	10	85	" "
12 1/2" Supply Fan	1	1.5	1	7/029	13	15	65	" "
Gantry Crane Port Ford	2	40	1	37/072	150	152	600	" " 1 MOTOR TRAVERSE 1 MOTOR HOIST
" " Port Aft	2	40	1	37/072	150	152	440	" " Do.
" " Star Ford	2	40	1	37/072	150	152	600	" " Do.
" " Star Aft	2	40	1	37/072	150	152	440	" " Do.

NOTE - Regarding Gantry Crane motors, Traverse motor will not be used when hoist motor is operating & vice versa.

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.



Electrical Engineers.

Date Sept 2nd 1941

COMPASSES.

Minimum distance between electric generators or motors and standard compass eighteen feet

Minimum distance between electric generators or motors and steering compass twenty feet

The nearest cables to the compasses are as follows:—

A cable carrying 0.13 Ampères on ~~feet from~~ standard compass 8 feet from steering compass.

A cable carrying 0.13 Ampères 8 feet from standard compass on ~~feet from~~ steering compass.

A cable carrying 18 Ampères 8 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 & calibrated with DG on & off

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.



Builder's Signature.

Date Sept 2nd 1941

Is this installation a duplicate of a previous case no If so, state name of vessel _____

Plans. Are approved plans forwarded herewith no If not, state date of approval _____

Original Install. 29/2/40

Adm. Comm. etc 2/6/41 & 1/7/41

Certificates. Are certificates of test for motors engaged on essential services and generators forwarded herewith yes except for 225 volt generators which were supplied & tested by the Admiralty.

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 fitted on board under special survey & in accordance with approved plans & Secretary's letters. The installation has been tested under full working conditions & found satisfactory. The materials & workmanship are good.

Noted
S.S.
9/10/41

110V = 50 KW

Total Capacity of Generators 225V = 150 KW Kilowatts.

The amount of Fee ... £ 42 : 10 : - 19.9 : - 41

When applied for,

Travelling Expenses (if any) £

When received.

R. Shaw for self and A. Haffner
Surveyor to Lloyd's Register of Shipping.

Committee's Minute

TUE. 14 OCT 1941

Assigned

See Vol. 76 13058