

REPORT ON ELECTRICAL EQUIPMENT.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

24 NOV 1941

Received at London Office.....

Date of writing Report... 10th Nov 1941 When handed in at Local Office... 17. 11. 41 Port of... BelfastNo. in Survey held at... Belfast Date, First Survey... 12 Aug Last Survey... 12 Nov 41
Reg. Book. (Number of Visits... 15)

on the... M.V. "EMPIRE DIAMOND" Tons { Gross... Net...

Built at... Belfast By whom built... Messrs Harland & Wolff Yard No. 1053 When built... 1941

Owners... The Ministry of Shipping Port belonging to... Belfast

Electrical Installation fitted by... Messrs Harland & Wolff Ltd Belfast Contract No. 1053 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. No Sub.Sig. No

Have plans been submitted and approved... Yes System of Distribution... Two wire system Voltage of supply for Lighting... 110

Heating... Power... 110 Direct or Alternating Current, Lighting... D.C Power... D.C If Alternating Current state frequency... Prime Movers,

has the governing been tested and found efficient when the whole 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... 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 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... Starboard side of Motor Room Bottom

Platform 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... On platform starboard side of

Motor Room

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...

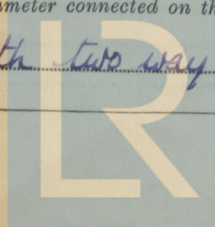
One 300 amp D.P. C.O. Knife switch and fuses.

and for each outgoing circuit... D.P. Change over switches with fuses on each pole

Are compartments containing switchboards composed of fire-resisting material or lined as per Rule... Yes Instruments on main switchboard... 2

ammeters... 2 voltmeters... synchronising devices. For compound machines in parallel is the ammeter connected on the pole opposite to the

equaliser connection... Earth Testing, state means provided... Two earth lamps with two way & off switch



Lighting & Heating, etc. Cables (continued)

Description	CONDUCTORS		MAXIMUM CURRENT IN AMPS		APPROX LENGTH (LEAD PLUS RETURN FEET)	INSULATED WITH	HOW PROTECTED
	NO IN PARALLEL PER POLE	NO AND DIA. OF STRANDS	IN THE CIRCUIT	ROLE			
Dist Box No 10 Ltg. Motor Room	1	7/036	13	24	140	Rubber	L.S.A.B.
" " No 11 -do-	1	7/029	8	15	20	"	"
" " No 12 -do-	1	7/029	8.5	15	140	"	"
" " No 13 -do-	1	7/029	8.5	15	20	"	"
" " No 14 -do-	1	7/029	5	15	150	"	"
" " No 15 -do-	1	7/029	7.5	15	30	"	"

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, are the reversed current protection devices connected on the pole opposite to the equaliser connection —, have they been tested under working conditions —. 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 5.1V, 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 exposed 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 L.S.A.B. run in steel channel under fore & aft gangways: Duplicate Circuits L.S.A.B. run in plumbers piping along deck: Machinery spaces L.S.A.B. on plating Accommodation L.C.: Tween deck spaces L.C. in conduit.

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 sheet lead. 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 —, are they adequately ventilated —.

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 Pumprooms) 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 —, whether fixed or portable —, are their fittings as per Rule —. Heating and Cooking, is the general construction as per Rule —, are the frames effectually earthed —, are heaters in the accommodation of the convection type —. 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 —. 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. If portable lamps for use in dangerous spaces are supplied, are they of a self-contained battery-fed flameproof type 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 megger 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 ...	<u>2</u>	<u>25</u>	<u>110</u>	<u>228</u>	<u>600</u>	<u>Steam Engines</u>	<u>—</u>	<u>—</u>
EMERGENCY ...								
ROTARY TRANSFORMER								

GENERATOR CABLES

[illegible]

MAIN DISTRIBUTION CABLES

AUX. SWITCHBOARDS AND SECTION BOARDS ...								
Section Box N ^o 1. Fuses Amid. dtg	1	37/064	89	130	620	Rubber	LSAB	
" " N ^o 2 Portable Connections	1	19/052	18	64	180	"	"	
" " N ^o 3 Aft Lighting	1	19/052	35.5	64	168	"	"	
" " N ^o 4 Motor Rm. dtg.	1	19/044	47	53	90	"	"	
" " N ^o 5 Vent Fano	1	19/064	40	83	150	"	"	
Dist. Box Ml. Motor Room motors	1	19/064	42	83	250	"	"	
D.G. Panel fitted to bus-bars on main board with D.P. change-over switch								

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 No 1 Lighting, Navigation etc.	1	7/052	33	37	90	"	L.C.
" " No 2 Lighting Accommodation	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	"	L.S.A.B
" " No 6 Lighting Fixture	1	7/044	4.4	31	320	"	"
" " No 7 Portable Connections	1	7/029	6.5	15	50	"	L.C.
" " No 8 Lighting Accommodation	1	7/044	25	31	195	"	"
" " No 9 " "	1	7/044	22.5	31	30	"	"
(continued on fly)							

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	"	"
Standby F.O. Pump	1	1.75	1	7/036	15.9	24	165	"	"
L.O. Purifier	1	2.5	1	7/036	21.3	24	180	"	"
Supply Fan No 1	1	3	1	7/064	26	46	480	"	"
Supply Fan No 2	1	3	1	7/044	26	31	80	"	"

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 *Nov. 10th. 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 D.G. 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 *11. 11. 41.*

Is this installation a duplicate of a previous case *no*

If so, state name of vessel

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 and in accordance with the approved plans, tested under full working conditions and found satisfactory.

The materials and workmanship are good.

Noted

27/11/41.

Total Capacity of Generators..... *50* Kilowatts.

The amount of Fee ... £ *27 : 10* : -

Travelling expenses (if any) £ : : -

When applied for,

When received.

Surveyor to Lloyd's Register of Shipping.

Committee's Minute

TUE. 2 DEC 1941

Assigned

See Bel. JE 13111



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Foundation