

## REPORT ON ELECTRICAL EQUIPMENT.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

11 MAR 1943

Received at London Office

Date of writing Report.....19..... When handed in at Local Office.....19..... Port of HULLNo. in Survey held at Beverley & Hull Date, First Survey 19. 11. 42 Last Survey 12. 2. 19 43  
Reg. Book. (Number of Visits.....22.....)on the military class tanker GRENADE Tons {Gross.....580.  
Net.....182.Built at Beverley By whom built Cook, Weston & Emmell Yard No. 703 When built 1943Owners The Admiralty Port belonging to.....Electrical Installation fitted by Wm Broadbent Son Ltd Contract No..... When fitted 1943Is vessel fitted for carrying Petroleum in bulk No Is vessel equipped with D.F. Yes E.S.D. Yes Gy.C. No Sub.Sig NoHave plans been submitted and approved Yes System of Distribution two wire Voltage of supply for Lighting 110Heating Yes Power Yes Direct or Alternating Current, Lighting DC Power DC 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..... 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....., are shunt field regulators provided Yes Is the compound winding connected to the negative or positive polenegative Have machines over 100 kw. been inspected by the Surveyors during manufacture and testing..... Have certificates oftest for machines under 100 kw. been supplied Admiralty and the results found as per rule Yes Are the lubricating arrangements and the constructionof the generators as per rule Yes Position of Generators Starboard side of engine roomis 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 metalliccontact Yes Switchboards, where are main switchboards placed Starboard side of engine room neargeneratorare they in accessible positions, free from inflammable gases and acid fumes Yes, are they protected from mechanical injury and damage from water, steamand oil Yes, if situated near unprotected combustible material state distance from same horizontally..... and vertically....., what insulationmaterial is used for the panels knives mounted on framework insulated with mica, if of synthetic insulating material is it an Approved Type Yes, if ofsemi-insulating material (slate or marble) are all conducting parts insulated therefrom as per Rule..... Is the frame effectually earthed YesIs the construction as per Rule Yes, including accessibility of parts Yes, absence of fuses on the back of the board Yes, individual fusesto 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 Double pole pushbreak knife switches and double pole fusesand for each outgoing circuit Double pole push break knife switches and double pole fusesAre compartments containing switchboards composed of fire-resisting material or lined as per Rule Yes Instruments on main switchboard oneammeters one voltmeters..... synchronising devices. For compound machines in parallel is the ammeter connected on the pole opposite to theequaliser connection..... Earth Testing, state means provided Lamps connected to earth via switches & fusesSwitches, Circuit Breakers and Fuses, are they as per Rule Yes, are the fuses an approved type Yes, are all fuses labelled asper Rule Yes If circuit breakers are provided for the generators, at what overload current did they open when tested....., are the reversed current

protection devices connected on the pole opposite to the equaliser connection....., have they been tested under working conditions, and at what current

did they operate..... Joint Boxes, Section Boards and Distribution Boards, is the construction and position as per Rule YesCables, 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 3V, are the ends of all cables having a sectional area of 0.04square inch and above provided with soldering sockets Yes Are paper insulated and varnished cambric insulated cables sealed at the ends.....

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Foundation

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. Yes, if so, are they adequately protected. — Are cables in machinery spaces, galleys, laundries, etc., lead covered. Yes or run in conduit. Yes State how the cables are supported and protected. Clipped to perforated steel trays on direct to bulkheads in machinery spaces etc. & clipped to wooden battens or direct to woodwork in accommodation.

Are all lead sheaths, armouring and conduits effectually bonded and earthed. Yes Refrigerated chambers, are the cables and fittings as per Rule. — 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 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. No Secondary Batteries, are they constructed and fitted as per Rule. —, are they adequately ventilated. — what is the battery capacity in ampere hours. —

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. —

Admiralty fittings in magazines & spirit rooms. and where are the controlling switches fitted. on mess decks above, are all fittings suitably ventilated. Yes

are all fittings and accessories constructed and installed as per Rule. Yes Searchlight Lamps, No. of. Two 9", whether fixed or portable. portable, 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 convection type. No 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. — Have motors of 100 BHP and over been inspected by the Surveyors during manufacture and testing. — Have certificates of test for motors under

100 BHP intended for essential services been supplied and the results found as per Rule. Admiralty Supply 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. —, 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	1	20	110	182	400	Steam engine		
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	20	1	37/093	182	214	20'	VIR	AP 6193A LC
" " EQUALISER								
EMERGENCY GENERATOR								
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							
After lighting	1	7/036	20	24	24'	VIR	AP 6193A LC WE
Heating & fans	1	7/036	6	24	50'	"	" " " "
Forward lighting & fans	1	19/052	20	64	202'	"	6190A " "
Heating	1	19/052	80	64	212'	"	" " " "
2nd Store supply	1	7/044	20	31	20'	"	6192A " "
	1	37/093		214	12'	"	6195A " "

#### LIGHTING AND HEATING, ETC., CABLES.

WIRELESS	1	7/036	95	24	180'	VIR	AP 6192A LC WE
NAVIGATION LIGHTS	1	7/036	6	24	180'	"	" " " "
LIGHTING AND HEATING							
Engine & boiler room	1	7/036	20	24	24'	"	" " " "
P.O. accommodation (lighting)	1	7/036	12	24	20'	"	" " " "
Ward room & officers (lighting)	1	7/036	12	24	12'	"	" " " "
" " (heating)	1	19/052	50	64	212'	"	6190A " "
Stores accommodation (heating)	1	7/036	20	24	40'	"	6191A " "
Radio	1	7/044	8	31	296'	"	6192A " "
Projectors 10"	1	7/036	18.5	24	272'	"	6193A " "

#### MOTOR CABLES.

ALL IMPORTANT MOTORS TO BE ENUMERATED.	No.	B.H.P.						
Fan 12 1/2"	1	1 1/2	1	7/036	14	24	80	VIR AP 6193A LC WE
" 7 1/2"	1	1/2	1	7/036	4.5	24	25	VIR " " " "
" 5 1/2"	3	1/2	1	3/036	2.5	10	30	" 6195A " "
Refrigerator 7 1/2" Cu. ft.	1	1/2	1	3/036	5.2	10	20	" " " "
3 1/2 " "	1	1/2	1	3/036	5.2	10	40	" " " "



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.

WM BROADY & SON LTD.  
ENGLISH STREET,  
HULL.

Electrical Engineers.

Date 10-2-43.

#### COMPASSES.

Minimum distance between electric generators or motors and standard compass 60'

Minimum distance between electric generators or motors and steering compass 53'

The nearest cables to the compasses are as follows:—

A cable carrying 1 Ampères inside feet from standard compass 5 feet from steering compass.

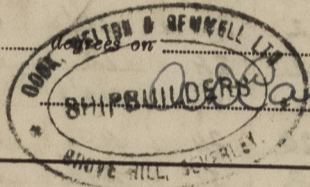
A cable carrying 25 Ampères 5 feet from standard compass inside feet from steering compass.

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 1/2 degrees on every course in the case of the standard compass, and 1/2 degrees on every course in the case of the steering compass.



Builder's Signature.

Date 13-2-43

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 6/8/42 Admiralty Gen P. 0772/42

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

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

equipment of this vessel was installed under special survey and in accordance with the approved plans and with the specification. The materials used are of good quality and the workmanship is good. On completion the equipment was operated under working conditions with satisfactory results and the insulation resistance of all circuits and apparatus was measured and found good. This equipment is in my opinion suitable for a classed vessel.

Noted

Thus

17.3.43

Total Capacity of Generators 20 Kilowatts.

The amount of Fee ... £ 35: 0: When applied for, 10 MAR 1943

Travelling Expenses (if any) £ : : When received, 19

A. E. Cornwell

Surveyor to Lloyd's Register of Shipping.

FRI. 19 MAR 1943

Committee's Minute

Assigned

Dec. Inl. 76. 51932