

REPORT ON ELECTRICAL EQUIPMENT.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

NAVIGATOR 28TH OCTOBER 1944 (SECT. H) When handed in at Local Office 7.11.1944 Port of GLASGOW

RECEIVED
9 NOV 1944

No. in Survey held at PORT GLASGOW Date, First Survey 22ND MAY Last Survey 2ND NOVEMBER 1944
Reg. Book. EMPIRE REST (Number of Visits 21)

Built at PORT GLASGOW By whom built FERGUSON BROTHERS (PORT GLASGOW) LTD Yard No. 371 When built 1944

Owners MINISTRY OF WAR TRANSPORT Port belonging to GREENOCK

Electrical Installation fitted by J. CHARTERS Contract No. 371 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 Voltage of supply for Lighting 225

Heating 225 Power 225 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 NO

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 POSITIVE (ADM. PATT.)

Have machines over 100 kw. been inspected by the Surveyors during manufacture and testing - 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 IN ENGINE ROOM

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 IN ENGINE ROOM NEAR GENERATORS

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 FITTINGS MOUNTED ON INSULATED RODS if of synthetic insulating material is it an Approved Type ADM. PATT. 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 60 KW GENERATOR - 300 AMP.

D.P. KNIFE PATTERN SWITCH AND FUSES : 30 KW GENERATOR - 150 AMP D.P. CHANGE OVER SWITCH AND FUSES

and for each outgoing circuit 60 AMP. OR 30 AMP. D.P. CHANGE OVER SWITCHES AND FUSES

Are compartments containing switchboards composed of fire-resisting material or lined as per Rule YES Instruments on main switchboard 3 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 EARTH LAMPS.

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 - 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 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 6.6 VOLTS 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 YES

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. YES, if so, are they adequately protected. YES Are cables in machinery spaces, galleys, laundries, etc., lead covered. YES or run in conduit. YES State how the cables are supported and protected. MAINS: V.C. L.C. CABLE OR H.R.B. CABLE CLIPPED TO STEEL TRAY

MACHINERY SPACE: H.R.B. CABLE CLIPPED TO TRAY

ACCOMMODATION: H.R.B. CABLE CLIPPED TO WOODWORK

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 Alternative Lighting, are the groups of lights in the engine and boiler rooms arranged as per Rule. YES Emergency Supply, state position. YES

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. YES

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. YES

ADMIRALTY PATTERN MAGAZINE FITTINGS:

and where are the controlling switches fitted. OUTSIDE MAGAZINE, are all fittings suitably ventilated. YES

are all fittings and accessories constructed and installed as per Rule. YES Searchlight Lamps, No. of. YES, whether fixed or portable. YES

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. 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. YES and vertically. YES 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. 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	1	60	225	267	500	STEAM ENGINE		
	1	30	225	133	500	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	60	1	61.093	267	464	50	V.C.	L.C.
" " EQUALISER								
MAIN GENERATOR	30	1	37.072	133	246	100	V.C.	L.C.
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							
POWER AFT (SECT. H)	1	19.052	46	104	132	V.C.	L.C.
BRIDGE MIDSHIP + AFT LIGHTING (SECT. B)	1	7.052	17	57	180	V.C.	L.C.
FORWARD LIGHTING (SECT. C)	1	19.052	35	104	420	V.C.	L.C.
POWER FORWARD (SECT. D)	1	19.052	61.9	104	360	V.C.	L.C.
NAVIGATION (SECT. H)	1	7.044	8.7	31	360	H.R.B.	-
SHORE CONNECTION	1	19.083	-	191	120	V.C.	L.C.

LIGHTING AND HEATING, ETC., CABLES.

WIRELESS	1	7.064	15	75	360	V.C.	L.C.
NAVIGATION LIGHTS	1	3.036	1.6	10	60	H.R.B.	-
LIGHTING AND HEATING							
FORWARD LIGHTING D.B.	1	7.036	18.5	24	40	H.R.B.	-
OFFICERS ACCOMMODATION LIGHTING D.B.	1	7.029	4.4	15	120	H.R.B.	-
MIDSHIP LIGHTING D.B.	1	7.029	9	15	3	H.R.B.	-
AFT ACCOMMODATION LIGHTING D.B.	1	7.029	3.6	15	144	H.R.B.	-
ENGINE ROOM + BOILER ROOM LIGHTING D.B.	1	7.044	19.8	31	36	H.R.B.	-
RADAR	1	7.044	13.5	31	360	H.R.B.	-
10" PROJECTORS	1	19.082	37.5	104	360	V.C.	L.C.
POWER AFT D.B. N°1	1	7.044	30.1	75	3	V.C.	L.C.
POWER AFT D.B. N°2	1	7.036	10.5	24	120	H.R.B.	-
POWER FORWARD D.B. N°1	1	7.044	20	31	90	H.R.B.	-
POWER FORWARD D.B. N°2	1	7.036	8.5	24	90	H.R.B.	-
GYRO COMPASS.	1	7.029	10	15	50	H.R.B.	-

MOTOR CABLES.

ALL IMPORTANT MOTORS TO BE ENUMERATED.	No.	B.H.P.					
DOMESTIC F.W. PUMP.	1	1.5	1	7.029	6.3	15	120 H.R.B.
DOMESTIC REFRIGERATOR	1	2.5	1	7.029	11	15	90 H.R.B.
17 1/2" VENT FAN.	1	3.1	1	7.029	12.5	15	90 H.R.B.
12 1/2" VENT FANS.	2	1.45	1	7.029	6.6	15	H.R.B.
10" VENT FANS.	3	1	1	3.036	4.75	10	H.R.B.
7 1/2" VENT FANS.	4	.55	1	3.036	2.5	10	H.R.B.
5" VENT FANS.	11	.18	1	3.029	1	5	H.R.B.

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.

J. Charters Electrical Engineers. Date *2nd Nov 44*

COMPASSES. LEAD.

Minimum distance between electric ~~generators or motors~~ and standard compass *TWENTY FEET*

Minimum distance between electric ~~generators or motors~~ and steering compass *FIFTEEN FEET*

The nearest cables to the compasses are as follows:—

A cable carrying *1.6* Amperes *10* feet from standard compass *6* feet from steering compass.

A cable carrying *2* Amperes *LED INTO* ~~feet from~~ standard compass *LED INTO* ~~feet from~~ steering compass.

A cable carrying Amperes 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 *ANY* course in the case of the standard compass, and *NIL* degrees on *ANY* course in the case of the steering compass.

Peter Ferguson MANAGING DIRECTOR. Date *3rd Nov 1944*

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

Plans. Are approved plans forwarded herewith *No* If not, state date of approval *15th JUNE 1944*

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

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, tested under working conditions and found satisfactory. All the requirements of the approved plans and M.O.W.T Specification have been carried out. The materials and workmanship are good.

*Noted
Hus
29.11.44*

1	60	225	267	500	STEAM ENGINE
1	30	225	134	500	STEAM ENGINE

Total Capacity of Generators *90* Kilowatts.

The amount of Fee for £ *39.4.6* When applied for, 19.

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

Committee's Minute *GLASGOW 27 NOV 1944*

Assigned

5m. 4. 20. Transfer. (MADE AND PRINTED IN ENGLAND.) (The Surveyors are requested not to write on or below the space for Committee's Minute.)

