

REPORT ON ELECTRICAL EQUIPMENT.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

13 DEC 1944

Received at London Office

Date of writing Report... 1.12.1944 When handed in at Local Office... 1.12.1944 Port of... HULL

No. in Survey held at... Selby & Hull Date, First Survey... 28.9.44 Last Survey... 3.12.44 Reg. Book. (Number of Visits... 10)

on the... Rescue Tug Improved Type "ENFORCER" Tons {Gross 762, Net 78}

Built at... Selby By whom built... Cochrane & Sons, Ltd. Yard No... 1288 When built... 1944

Owners... Ministry of War Transport Port belonging to... -

Electrical Installation fitted by... Wm. Broady & Sons, Ltd. Contract No... - When fitted... 1944

Is vessel fitted for carrying Petroleum in bulk... No Is vessel equipped with D.F... No E.S.D... Yes Gy.C... No Sub.Sig... No

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

Heating... 110 Power... 110 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... 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... - 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 starboard side on 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... Engine room on platform forwrd bulkhead 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... "Syndanyo" 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... Double pole quick

break knife switches and double pole fuses.

and for each outgoing circuit... Double pole quick break knife switches and double pole fuses.

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

ammeters... one 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... Lamps coupled to earth via fuses and switches.

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

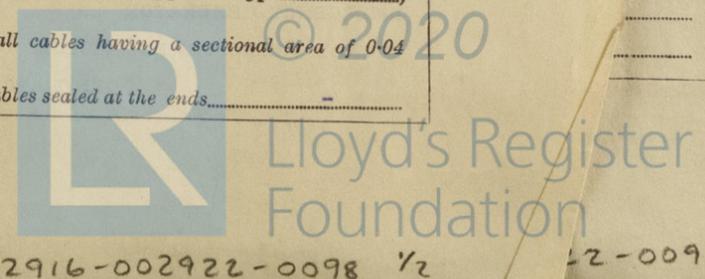
did they operate... - Joint Boxes, Section Boards and Distribution Boards, is the construction and position as per Rule... Yes

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... 3V 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... -

Are paper insulated and varnished cambric insulated cables sealed at the ends... -



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. Yes or run in conduit. State how the cables are supported and protected. In machinery spaces etc., L.C. & A. clipped to perforated steel plates or direct to steelwork, in accommodation spaces etc. L.C. clipped to wood battens or direct 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. 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. No, if so, how are they protected. and where are the controlling switches fitted. are all fittings suitably ventilated. are all fittings and accessories constructed and installed as per Rule. Searchlight Lamps, No. of 1-10", whether fixed or portable. fixed, are their fittings as per Rule. Yes. Heating and Cooking, is the general construction as per Rule. are the frames effectually earthed. 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. Control Gear and Resistances, are they constructed and fitted as per Rule. Yes. Lightning Conductors, where required are they fitted as per Rule. steel masts. 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. 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.	Amps.	Revs. per Min.		Fuel Used.	Flash Point of Fuel.
MAIN	1	20	110	183	400	Steam Engine	-	
	1	20	110	174	500	"	-	
				183	400	"	-	
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	183	214	12'0"	V.I.R.	L.C. & A.
" " EQUALISER	20	1	37/.093	174	214	40'0"	"	" "
				183				
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							
Ventilation	1	7/.064	25	46	24'	V.I.R.	L.C. & A.
D.G.	1	19/.064	25	83	52'		

LIGHTING AND HEATING, ETC., CABLES.

DESCRIPTION.	No.	CONDUCTORS.	MAXIMUM CURRENT IN AMPERES.	APPROX. LENGTH (lead plus return feet).	INSULATED WITH.	HOW PROTECTED.
WIRELESS	1	7/.044	25	31	180'	V.I.R. L.C. & A.
NAVIGATION LIGHTS	3	7/.029	5	15	24'	" " "
LIGHTING AND HEATING						
Forward accommodation	1	7/.064	15	46	220'	" " "
Bridge	1	7/.029	10	15	275'	" " "
10" Projectors	1	7/.036	10	24	310'	" " "
Engine & Boiler Room and aft accommodation switches mounted on main switchboard.						

MOTOR CABLES.

ALL IMPORTANT MOTORS TO BE ENUMERATED.	No.	B.H.P.	CONDUCTORS.	MAXIMUM CURRENT IN AMPERES.	APPROX. LENGTH (lead plus return feet).	INSULATED WITH.	HOW PROTECTED.	
Engine room fan 12"	1	1 1/2	7/.029	7/.029	14	15	40'	V.I.R. L.C. & A.
Port & Starboard Fans 10"	2	1	7/.029	10	15	160'	" " "	
Food store and galley fans 5"	2	1	7/.044	5	5	240'	" " "	
Vent for Bridge Refrig.	1	1	3/.036	10	10	120'	" " "	

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. Buchan
 W.M. BOOTHBY & SONS LTD.
 100, QUEEN STREET,
 HULL.

Electrical Engineers. Date 28.11.44

COMPASSES.

Minimum distance between electric generators or motors and standard compass 92'0"
 Minimum distance between electric generators or motors and steering compass 86'0"
 The nearest cables to the compasses are as follows:—
 A cable carrying .6 Ampères inside feet from standard compass ; - feet from steering compass.
 A cable carrying .6 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.

FOR COCHRANE & SONS, LTD. Builder's Signature. Date
V. Gray DIRECTOR

Is this installation a duplicate of a previous case Yes If so, state name of vessel "ENIGMA"
 Plans. Are approved plans forwarded herewith No If not, state date of approval 2.6.43
 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 was installed under special survey and in accordance with the approved plan and with the specification.
The materials 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.

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8.1.45

Total Capacity of Generators 40 Kilowatts.

The amount of Fee ... £ 25 : - When applied for, 12 DEC 1944
 25% for Spec. 6 5
 Travelling Expenses (if any) £ : : When received.10.....

W. E. Cornell
 Surveyor to Lloyd's Register of Shipping.

Committee's Minute FRI. 12 JAN 1945

Assigned See F.E. machy. rpt.

5m. 4.39. - Transfer. (MADE AND PRINTED IN ENGLAND.)
 (The Surveyors are requested not to write on or below the space for Committee's Minute.)