

# REPORT ON ELECTRICAL EQUIPMENT.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

Received at London Office

21 NOV 1946

Date of writing Report... 29th Oct. 1946 When handed in at Local Office... 6 - 11 - 1946 Port of... NEWCASTLE-ON-TYNE

No. in Survey held at... Walker Date, First Survey... 15. Jly. 1946 Last Survey... 31st Oct. 1946  
Reg. Book. (Number of Visits... 13)

85891 on the m.v. "BRITISH EARL" Tons { Gross... 8573  
Net... 4909

Built at... NEWCASTLE/ON/TYNE By whom built... Swan Hunter & Wigham  
Richardson, Ltd. Yard No. 1772 When built... 1946

Owners... British Tanker Co. Ltd., Port belonging to... London

Electrical Installation fitted by... Campbell & Isherwood Ltd., Contract No. - When fitted... 1946

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. -

Have plans been submitted and approved... Yes System of Distribution... 2 wire insulated Voltage of supply for Lighting... 110

Heating... 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... Yes, 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... 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... 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... Sindanyo, 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... 300 ampere circuit

breaker with under voltage release, overload relays with time lags and reverse current

relay

and for each outgoing circuit... double pole quick break switch with a fuse on each insulated pole

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

ammeters... 3 voltmeters... 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... 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... 400 amps are the reversed current

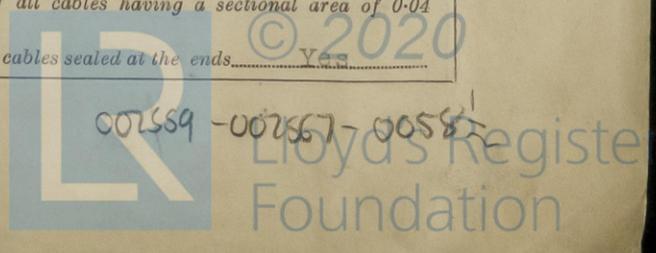
protection devices connected on the pole opposite to the equaliser connection... Yes, have they been tested under working conditions, and at what current

did they operate... Yes, 30 amp 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 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 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 MAIN CABLES - LEAD COVERED ARMORED AND BRAIDED CLIPPED TO STEEL TRAY ALONG FORE AND AFT GANWAYS - LEAD COVERED AND BRAIDED CLIPPED TO STEEL TRAY IN ENGINE ROOM, ACCOMMODATION CABLES - HARD RUBBER CLIPPED TO WOOD GROUNDS.

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 effectively 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 - 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 - 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 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 - 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 - 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 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			Revs. per Min.	DRIVEN BY	WHERE DRIVEN BY AN INTERNAL COMBUSTION ENGINE.	
		Kilowatts.	Volts.	Ampères.			Fuel Used.	Flash Point of Fuel.
MAIN	3	30	110	243	600	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	30	1	37-083	243	296	80	V.C.	L.C.+B.
" " EQUALISER		1	19-083	127	191	40	V.C.	L.C.+B.
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								
MIDSHIP SECTION BOARD.	"A"	1	24-072	65	246	560	V.C.	L.C.A.+B.
AFT SECTION BOARD.	"B"	1	19-044	60	84	124	V.C.	L.C.A.+B.
VENT. FANS SECTION BOARD.	"F"	1	19-044	46	135	204	V.C.	L.C.A.+B.
VENT. FANS SECTION BOARD.	"G"	1	19-083	76	191	560	V.C.	L.C.A.+B.
E.B. LIGHTING SECTION BOARD.	"C"	1	19-044	50	94	90	V.C.	L.C.A.+B.
WORKSHOP SECT. BOARD.	"E"	1	19-052	56	104	124	V.C.	L.C.A.+B.
OIL PURIFIER SECT. BOX	"D"	1	19-044	48	84	124	V.C.	L.C.A.+B.

LIGHTING AND HEATING, ETC., CABLES.

WIRELESS	1	19-044	25	41	560	V.C.	L.C.A.+B.
NAVIGATION LIGHTS	1	7-044	8	42	560	V.C.	L.C.A.+B.
LIGHTING AND HEATING		ALT. SUPPLY FROM WHEELHOUSE D.B. TRM. C.O.D.					
CREW ACCOMM. LIGHTING. PORT.	1	7-044	11.6	42	48	V.C.	L.C.B.
CREW ACCOMM. LIGHTING. STAR.	1	7-044	10.5	42	70	V.C.	L.C.B.
GALLEY AND HOSPITAL LIGHTING.	1	7-044	4.0	42	220	V.C.	L.C.B.
CREW ACCOMM. UPPER DECK. PORT.	1	7-044	14.2	42	40	V.C.	L.C.B.
CREW ACCOMM. UPPER DECK. STAR.	1	7-044	14.0	42	60	V.C.	L.C.B.
FORECASTLE LIGHTING.	1	7-044	2.5	42	420	V.C.	L.C.A.+B.
ENGINEERS ACCOMM. LIGHTING STAR.	1	7-044	12.0	42	40	V.C.	L.C.B.
ENGINEERS ACCOMM. LIGHTING PORT.	1	7-044	12.7	42	30	V.C.	L.C.B.
CENTRE CASTLE LIGHTING.	1	7-044	6.5	42	60	V.C.	L.C.B.
UPPER BRIDGE DECK LIGHTING.	1	7-044	17.2	42	92	V.C.	L.C.B.
BRIDGE DECK LIGHTING.	1	7-044	8.5	42	120	V.C.	L.C.B.
FLOODLIGHTS.	1	7-044	10.8	42	150	V.C.	L.C.B.
WHEELHOUSE LIGHTING.	1	7-044	6.5	42	100	V.C.	L.C.B.
MACHINE SPACE LIGHTING.	1	19-044	24.0	87	48	V.C.	L.C.A.+B.

MOTOR CABLES.

ALL IMPORTANT MOTORS TO BE ENUMERATED.	No.	B.H.P.							
E.B. VENT. FAN PORT.	1	3	1	7-044	26	42	32	V.C.	L.C.B.
E.B. VENT. FAN STAR.	1	3	1	7-044	26	42	42	V.C.	L.C.B.
E.B. VENT. FAN MIDSHIP.	1	3	1	7-044	26	42	120	V.C.	L.C.B.
BOAT WINCHES.	4	2	1	7-044	18	42	104	V.C.	L.C.A.+B.
ACCOMM. VENT. FANS.	2	3	1	7-044	26	42	48	V.C.	L.C.B.
CRANE MOTOR.	1	2	1	7-044	18	42	240	V.C.	L.C.B.
RAISING PUMP MOTOR.	1	1 1/4	1	7-044	15	42	120	V.C.	L.C.B.
OIL PURIFIER MOTORS.	2	2	1	7-044	18	42	36	V.C.	L.C.B.
GRINDING MACHINE MOTOR.	1	1 1/2	1	7-044	15	42	65	V.C.	L.C.B.
WORKSHOP MOTOR.	1	4	1	7-044	35	45	50	V.C.	L.C.B.
DOM. REFRIG. COMPRESSOR MOTOR.	1	1 1/2	1	7-044	15	42	40	V.C.	L.C.B.

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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.

CAMPBELL & IGHKWOOD LTD. Electrical Engineers. Date 30.10.46  
MAIN CABLES - LEAD COVERED AND BRAIDED CLIPPED TO STEEL TRAY ALONG FORE AND AFT GANGWAYS -  
LEAD COVERED AND BRAIDED CLIPPED TO STEEL TRAY IN ENGINE ROOM. ACCOMMODATION CABLES - HARD RUBBER CLIPPED

COMPASSES (ROUNDS).

Minimum distance between electric generators or motors and standard compass 58ft

Minimum distance between electric generators or motors and steering compass 50ft

The nearest cables to the compasses are as follows:

A cable carrying 0.14 Ampères 6 feet from standard compass INSIDE feet from steering compass.

A cable carrying 0.14 Ampères INSIDE feet from standard compass 6 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.

SWAN, HUNTER, & WIGHAM RICHARDS Builder's Signature. Date 5 November 1946

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

Plans. Are approved plans forwarded herewith YES If not, state date of approval

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 INSTALLED IN ACCORDANCE WITH THE SOCIETY'S RULES AND REGULATIONS AND THE ARRANGEMENTS ARE IN ACCORDANCE WITH OR EQUIVALENT TO THOSE SHOWN ON THE APPROVED PLANS.

THE MATERIALS USED ARE OF GOOD QUALITY AND THE WORKMANSHIP IS SATISFACTORY. ON COMPLETION THE INSULATION RESISTANCE OF ALL CIRCUITS WAS ABOVE RULE REQUIREMENTS AND THE GENERATORS OPERATED ON LOAD AND GOVERNOR TESTS WITH SATISFACTORY RESULTS.

THE ELECTRICAL EQUIPMENT, AS INSTALLED, IS, IN MY OPINION, SUITABLE FOR A CLASSED VESSEL.

N.B. RADAR FITTED.

3 30 110 243 68 STEAM ENGINE 4/2/46

Total Capacity of Generators 90 Kilowatts.

The amount of Fee ... £ 31 : 10 : 118 NOV 1946

Travelling Expenses (if any) £ : : 30

Committee's Minute FRL 13 DEC 1946

Assigned See P.B. mch. rpt.

5m. 4.30.—Transfer. (The Surveys are requested not to write on or below the space for Committee's Minute.)

ML-D

