

# REPORT ON ELECTRICAL EQUIPMENT

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

Received at London Office

Date of writing Report... 6-3-47 When handed in at Local Office... APRIL 1947 Port of MIDDLESBROUGH

No. in Survey held at MIDDLESBROUGH. Date, First Survey 4-11-46 Last Survey 5-3-1947  
Reg. Book. (Number of Visits... 9)

85972 on the BRITISH EMPRESS Tons (Gross 8680 Net 4970)

Built at HAVERTON HILL By whom built FURNESS SHIPBUILDING CO. Yard No. 391 When built 1946

Owners BRITISH TANKER CO. LTD. Port belonging to LONDON

Electrical Installation fitted by FURNESS SHIPBUILDING CO. Contract No. 391 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. YES  
RADAR YES

Have plans been submitted and approved YES System of Distribution TWO WIRE INSULATED Voltage of supply for Lighting 110

Heating Power 110 Direct Current, Lighting YES Power YES 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 ENGINE ROOM, MIDSHIPS FORWARD OF MAIN ENGINE

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 FORWARD BULKHEAD ON GALLERY

AUX. SWITCHBOARD IN MIDSHIPS ACCOMMODATION

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 EBONY 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 TRIPLE POLE

CIRCUIT BREAKER WITH PROTECTIVE RELAYS FOR OVERLOAD, REVERSE CURRENT,

AND NO VOLT TRIPPING

and for each outgoing circuit DOUBLE POLE SINGLE THROW QUICK BREAK SWITCH AND

DOUBLE POLE FUSES

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

ammeters FOUR 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 CONNECTED TO 'E' THROUGH SWITCHES & FUSES

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 50%, are the reversed current

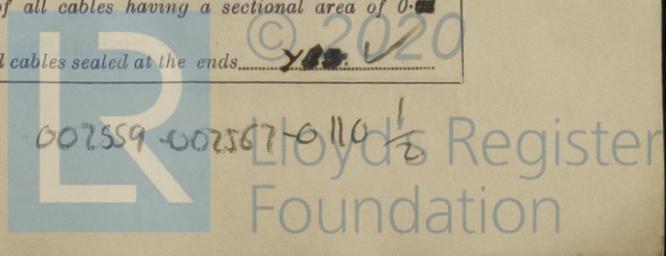
protection devices connected on the pole opposite to the equaliser connection YES, have they been tested under working conditions, and at what current

did they operate 10% 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 < 6y, are the ends of all cables having a sectional area of 0.01

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. LEAD COVERED ARMOURED & BRAIDED CABLES CLIPPED TO TRAY PLATES. LEAD COVERED CABLES CLIPPED TO WOOD GROUNDS IN ACCOMMODATION.

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. LOW VOLTAGE LAMPS IN ENGINE AND BOILER ROOMS and method of control. AUTOMATIC ON FAILURE OF MAIN SUPPLY. 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. NO, are they adequately ventilated. NO what is the battery capacity in ampere hours. NO

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 CENTRECASTLE AND ON DECK and where are the controlling switches fitted. IN SALOON DECKHOUSE, are all fittings suitably ventilated. YES, are all fittings and accessories constructed and installed as per Rule. YES. Searchlight Lamps, No. of NO, whether fixed or portable. NO, are their fittings as per Rule. NO. Heating and Cooking, is the general construction as per Rule. NO, are the frames effectually earthed. NO, 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. NO and vertically. NO. 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. NO

Have motors of 100 BHP and over been inspected by the Surveyors during manufacture and testing. NO. Have certificates of test for motors under 100 BHP intended for essential services been supplied and the results found as per Rule. NO. Control Gear and Resistances, are they constructed and fitted as per Rule. YES. Lightning Conductors, where required are they fitted as per Rule. NO. 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	Amps	Rev. per Min.		Fuel Used	Flash Point of Fuel
MAIN	3	30	110	273	640	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	273	296	52/60/70	V.C.	LCA & B.
" " EQUALISER		1	19/085		191	52/60/70	V.C.	LCA & 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							
AUXILIARY SWITCHBOARD MIDSHIPS	1	37/072	125	246	520	V.C.	LCA & B.
" " " "	1	37/072	125	246	520	V.C.	LCA & B.
POOP DECK MOTORS SECTION BOARD	1	19/052	96	104	150	V.C.	LCA & B.
WORKSHOP MOTORS SECTION BOARD	1	7/044	36	42	80	V.C.	LCA & B.

LIGHTING AND HEATING, ETC., CABLES.

WIRELESS	1	10/084	30	135	460	V.C.	LCA & B.
NAVIGATION LIGHTS	1	7/036	2	24	460	VIR	LCA & B.
LIGHTING AND HEATING	ALTERNATIVE SUPPLY TAKEN FROM WHEELHOUSE LIGHTING DB.						
WHEELHOUSE LIGHTING DIS. BOX	1	7/044	7	42	130	V.C.	LC & B.
CAPTAINS ACCOMMODATION DIS. BOX	1	7/036	9	24	130	VIR	LC & B.
EMERGENCY LIGHTING DIS. BOX	1	7/036	15	15	35	VIR	LCA & B.
ENGINE ROOM LIGHTING DIS. BOX	1	7/044	22	42	170	V.C.	LCA & B.
ENGINE ROOM LIGHTING DIS. BOX	1	7/044	25	42	170	V.C.	LCA & B.
FORECASTLE DIS. BOX	1	7/044	3	42	400	V.C.	LCA & B.
AFT ACCOMMODATION LIGHTING PORT	1	7/064	35	75	150	V.C.	LCA & B.
AFT ACCOMMODATION LIGHTING STBD.	1	7/064	34	75	140	V.C.	LCA & B.
ECHO SOUNDING EQUIPMENT	1	7/029	8	15	150	VIR	LC & B.
RADAR	1	7/044	40	42	160	V.C.	LC & B.
SUEZ CANAL PROJECTOR	1	7/064		75	1210	V.C.	LCA & B.
SHORE SUPPLY	1	19/083		191	170	V.C.	LCA & B.

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
			No. in Parallel Per Pole	Sectional Area or No. and Dia. of Strands. Sq. ins. or sq. mm.	In the Circuit	Rule			
GRINDING PUMP MOTOR	1	1/2	1	7/029	10	15	140	VIR	LCA & B.
GRINDER MOTOR	1	1/2	1	7/029	10	15	72	VIR	"
LATHE MOTOR	1	3	1	7/036	20	24	90	VIR	"
OIL PURIFIER MOTOR N°1	1	2	1	7/036	14	24	150	VIR	"
OIL PURIFIER MOTOR N°2	1	2	1	7/036	14	24	140	VIR	"
CRANE MOTOR	1	3	1	7/044	21	42	100	V.C.	"
BOAT HOIST MOTOR PORT	1	2	1	7/036	15	24	70	VIR	LC & B.
BOAT HOIST MOTOR STBD	1	2	1	7/036	15	24	170	VIR	"
CHILLED WATER & RESERVE PUMP MOTORS	2	0	1	7/064	68	75	1/80	V.C.	LCA & B.
EXTRACTOR PUMP	1	1/2	1	7/029	10	15	180	VIR	"
HOSPITAL FAN	1	2/4	1	7/036	17	24	100	VIR	LC & B.
GYRO COMPASS			1	7/036	8	24	160	VIR	"
AFT BOAT HOIST MOTOR PORT	1	2	1	7/036	15	24	160	VIR	"
" " " " STARB.	1	2	1	7/036	15	24	80	VIR	"
VEG ROOM FAN	1	1/4	1	3/029	2	5	90	VIR	LCA & B.
GALLEY BLOWER	1	1/4	1	3/029	2	5	70	VIR	"
REFRIG VENT FAN	1	1/4	1	3/029	2	5	180	VIR	"
GALLEY SUPPLY FAN	1	1/4	1	3/029	2	5	130	VIR	"
GALLEY VENT FANS	2	0.2	1	3/029	2	5	120	VIR	"
ENGINE RM. SUPPLY FAN	1	1/2	1	7/029	10	15	150	VIR	"
AFT ACCOM. VENT FAN PORT	1	3/4	1	7/044	24	42	120	V.C.	LC & B.
" " " " STARB.	1	3/4	1	7/044	24	42	120	V.C.	"
MIDSHIP ACCOM. VENT FAN PORT	1	3/4	1	7/044	24	42	100	V.C.	"
" " " " STARB.	1	3/4	1	7/044	24	42	100	V.C.	"

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.

FURNES SHIPBUILDING CO. LIMITED  
Electrical Engineers. Date 26.3.47

COMPASSES.

Minimum distance between electric generators or motors and standard compass 16 FEET

Minimum distance between electric generators or motors and steering compass 10 FEET.

The nearest cables to the compasses are as follows:—

A cable carrying 0.14 Ampères INSIDE standard compass 10 feet from steering compass.

A cable carrying 0.14 Ampères 10 feet from standard compass INSIDE 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.

Builder's Signature Date J. M. Robertson

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

Plans. Are approved plans forwarded herewith If not, state date of approval 13.4.1946

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

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 UNDER SPECIAL SURVEY AND THE ARRANGEMENTS ARE IN ACCORDANCE WITH OR EQUIVALENT TO THOSE SHOWN ON THE APPROVED PLANS AND THE SOCIETY'S REQUIREMENTS.

THE MATERIALS USED ARE OF GOOD QUALITY AND THE WORKMANSHIP IS GOOD. ON COMPLETION THE EQUIPMENT WAS OPERATED UNDER WORKING CONDITIONS. THE PROTECTIVE DEVICES OF THE CIRCUIT BREAKERS WERE ADJUSTED AND OPERATED AND THE INSULATION RESISTANCE OF ALL CIRCUITS MEASURED AND FOUND GOOD.

THIS INSTALLATION AS NOW FITTED IS, IN MY OPINION, SUITABLE FOR A CLASSED VESSEL INTENDED FOR THE CARRIAGE OF PETROLEUM IN BULK.

Table with columns for equipment type, quantity, and location. Includes items like EXTRACTOR PUMP, HOSPITAL FAN, GYRO COMPASS, etc.

Total Capacity of Generators 3 x 30 = 90 Kilowatts

The amount of Fee £ 3/ 10 : When applied for 1-4-1947

Travelling Expenses (if any) £ : : When received 10

Committee's Minute FRI 2 MAY 1947

Assigned Su F. E. nuchy. rpt.

MLD

5m. 4.30. Transfer. (MADE AND PRINTED IN ENGLAND.) (The Surveyors are requested not to write on or below the space for Committee's Minutes.)

