

REPORT ON ELECTRICAL EQUIPMENT.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

28 DEC 1943

Received at London Office.....

Date of writing Report.....19..... When handed in at Local Office.....19..... Port of NEWCASTLE-ON-TYNE.No. in Survey held at WALKER-ON-TYNE Date, First Survey 27-5-43 Last Survey 30-11- 1943
Reg. Book. (Number of Visits.....)on the M.A.C. EMPIRE MAC CABE Tons {Gross 9249
Net 4993Built at WALKER-ON-TYNE By whom built SWAN HUNTER & WIGHAM RICHARDSON and No. 1726 When built 1943Owners MINISTRY OF WAR TRANSPORT Port belonging to BRITISHElectrical Installation fitted by CAMPBELL & ISHERWOOD LTD. Contract No. 1726 When fitted 1943Is 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 TWO WIRE Voltage of supply for Lighting 110Heating — 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 atrip switch as per Rule — Generators, are they compound wound YES are they level compounded under working conditions YESif not compound wound state distance between generators — and from switchboard — Where more than one generator is fitted are theyarranged to run in parallel NO 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 YES and the results found as per rule YES Are the lubricating arrangements and the constructionof the generators as per rule YES Position of Generators ENGINE ROOM STBD. OUTBOARD "A" ON GALLERY OVERMAIN SHAFT. AFT. is the ventilation in way of generators satisfactory YES are they clear of inflammable material YES if situatednear unprotected combustible material state distance from same horizontally — and vertically — are the generators protected from mechanicalinjury 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 ENGINE ROOM STBD. ON GALLERYAUXILIARY SWITCHBOARDS ON BRIDGE DECK IN ACCOMMODATIONare 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 — 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 300 AMP. DOUBLE POLECIRCUIT BREAKERS WITH OVERLOAD, NO VOLT. AND REVERSE CURRENT TRIPS400 AMP. AS ABOVE.and for each outgoing circuit DOUBLE POLE, DOUBLE THROW, Q.B. SWITCHES AND DOUBLE POLE "Z" FUSES.Are compartments containing switchboards composed of fire-resisting material or lined as per Rule YES Instruments on main switchboard 3ammeters 3 voltmeters — synchronising devices. For compound machines in parallel is the ammeter connected on the pole opposite to theequaliser connection YES Earth Testing, state means provided EARTH LAMPS CONNECTED TO "E" THROUGH SWITCHES AND FUSES.Switches, 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 10% are the reversed currentprotection devices connected on the pole opposite to the equaliser connection — have they been tested under working conditions, and at what currentdid 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 4.4V are the ends of all cables having a sectional area of 0.07square inch and above provided with soldering sockets YES Are paper insulated and varnished cambric insulated cables sealed at the ends YES

with insulating compound.....YES..... 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.....LEAD COVERED ARMOUR AND BRAIDED CABLES CLIPPED TO PERFORATED TRAY PLATES.

LEAD COVERED CABLES CLIPPED TO PERFORATED TRAY PLATES, AND TO WOOD GROUNDS IN ACCOMMODATION.

PIROTEMAX CABLES CLIPPED TO TRAY PLATES FOR STEER AND MAST LIGHTS AND ALL ADMTY. LOW POWER MAINS.

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 AND BRASS BUSHES...... 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.....—....., 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.....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.....—..... 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.....—..... 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.....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 | <u>2</u> | <u>30</u> | <u>110</u> | <u>273</u> | <u>600</u> | <u>STEAM ENGINE.</u> | | |
| | <u>1</u> | <u>35</u> | <u>110</u> | <u>320</u> | <u>650</u> | <u>" "</u> | <u>ADMIRALTY SUPPLY.</u> | |
| 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 | <u>2 x 30</u> | <u>1</u> | <u>34/103</u> | <u>273</u> | <u>385</u> | <u>30/30</u> | <u>V.C.</u> | <u>L.C.A + B.</u> |
| " " EQUALISER | <u>35</u> | <u>1</u> | <u>34/103</u> | <u>320</u> | <u>385</u> | <u>90</u> | <u>V.C.</u> | <u>L.C.A + B.</u> |
| EMERGENCY GENERATOR | | | | | | | | |
| ROTARY TRANSFORMER: MOTOR | | | | | | | | |
| " " GENERATOR | | | | | | | | |



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| FORD UPPER BIDGE DECK | PORT LIGHTING | 1 | Y/.044 | 4 | 31 | 66 | V.I.R. | L.C. |
|--|---------------|---|--------|----|-------|-----|--------|-----------|
| AFT BRIDGE DECK STBD | | 1 | Y/.044 | 10 | 31 ✓ | 102 | V.I.R. | L.C. |
| CARGO CONNECTION BOXES | | 1 | Y/.044 | 12 | 31 ✓ | 30 | V.I.R. | L.C. |
| BRIDGE SPACE LIGHTING | | 1 | Y/.044 | 8 | 31 ✓ | 24 | V.I.R. | L.C. |
| FORD. STORE AND | | 1 | Y/.044 | 12 | 31 ✓ | 268 | V.I.R. | L.C. |
| EMERGENCY WIRELESS | | 1 | Y/.064 | 35 | 46.75 | 138 | Y.C. | L.C. A+B. |
| ECHOMETER. | | 1 | Y/.036 | | 24 ✓ | 148 | V.I.R. | L.C. |
| 002846-002852-0019 ² / ₃ | | | | | | | | |

MOTOR CABLES.

MAIN DISTRIBUTION CABLES.

"A"

LIGHTING AND HEATING, ETC., CABLES.

100

MOTOR CABLES.

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Foundation

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 & ISHERWOOD, LTD.
John Hunter

Electrical Engineers.

Date 11th Dec 1943

COMPASSES.

Minimum distance between electric generators or motors and standard compass 32 FEET

Minimum distance between electric generators or motors and steering compass 26 FEET

The nearest cables to the compasses are as follows:—

A cable carrying .14 Ampères INSIDE feet from standard compass INSIDE feet from steering compass.

A cable carrying .14 Ampères INSIDE 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 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 RICHARDSON, LTD.

Builder's Signature.

Date 16th December 1943

Thos. Harrison

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

Plans. Are approved plans forwarded herewith — If not, state date of approval 23-6-43

Certificates. Are certificates of test for motors engaged on essential services and generators forwarded herewith Received 7/1/44

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, in accordance with the approved plans and to the Societies Rules.

Materials used are of good quality, and the workmanship is satisfactory.

On completion, the Insulation Resistance tests, and load and governor tests on the Generators, were satisfactory.

Flight deck and armament equipment installed under the supervision of the Admiralty.

The Equipment, as installed, is, in my opinion, suitable for a belassed vessel.

*Noted
L.P.*

31/12/43.

Total Capacity of Generators 95 Kilowatts.

The amount of Fee ... £ 32.0.0. When applied for, not yet

Travelling Expenses (if any) £ 37: 0: 0. When received, not yet

A.H. Dimer
Surveyor to Lloyd's Register of Shipping.

Committee's Minute FBI 7 JAN 1944

Assigned see minute on J.E. Rpt