

Number on Ship's

Books

(To be noted in pencil)

MISCELLANEOUS BRANCHES (OTHERS)

COVER FOR CERTIFICATE OF SERVICE AND ENCLOSURES

SURNAME (IN BLOCK LETTERS)	CHRISTIAN NAMES

Rating Official Number
(To be noted in pencil)

CONTENTS.

DOCUMENT	When first enclosed	Disposal to be shown in pencil whenever a document is detached
Service Certificate ... History Sheet ... Trade Certificate ... Hurt Certificate ... Passing Certificates Educational ... E. T. I. E. T. II. H. E. T. (To be enclosed on transfer from Ship to Ship) Conduct Sheet & Record of Offences Sheet ... Kit List Divisional Record Sheet		

INSTRUCTIONS :--

This Form is to be used as a cover for every man's Certificate of Service and the other documents which are normally kept therewith. The date on which any Enclosure is first included is to be noted in ink and the contents of the cover are to be checked on each occasion of dispatch and receipt in a Ship or Establishment. When it is necessary to extract the Service Certificate or any Enclosure a note as to reason and disposal is to be made in pencil as provided for. The date of the annual inspection of the Service Certificate is to be noted on the back of this cover.

The letters "S.V." are to be marked clearly just above the "Rating" space in the case of ratings who have been accepted as volunteers for service in Submarines.

CHAPTER 4

MAINTENANCE RECORDS AND DOCUMENTS

The documentation of Electrical Maintenance and, indeed, the underlying principles of the maintenance itself are at present under consideration by the Admiralty. Until a few years ago, the method of carrying out and the periodicity of routine maintenance was left to the discretion of the Electrical Officer. Personnel shortages and the increase in the quantity and complexity of electrical equipment now demand that the maintenance shall be carefully and continually directed where it can achieve the maximum, particularly in the avoidance of breakdowns. In consequence, a leaf has been taken from the book of the Aviation system under which a set of routine maintenance operations are performed at firmly prescribed intervals, and the completion of these operations is recorded on the appropriate Official Form before the aircraft is allowed to fly.

Obviously the system is not completely adaptable to ships. Within limits any two aircraft of a certain type are identical (their differences are instantly apparent from their "State of modification" sheets). This is not the case with ships. Even small modern ships of the same class differ in the layout and type of their machinery and it would not be possible to produce one single maintenance schedule or recording form for any type of ship. A compromise system is therefore under trial under which maintenance and record sheets have been produced for different types of equipment fitted in the ships and special registers have been prepared containing the appropriate sheets. In some cases the registers are made up ashore, in others the sheets are provided to the Electrical Officer who makes up his own book bound in covers which are also provided.

Class authorities have been established with a view to improving the upkeep and maintenance of the Fleet. Their detailed responsibilities will be:-

- (a) To develop more efficient maintenance practices.
- (b) To develop preventive maintenance schedules.
- (c) To maintain a record of the material condition of ships for the purposes of ensuring the standard of upkeep required by the Admiralty and the Commands, and reporting to them on the condition of any ship as and when required to do so.
- (d) To provide advice on cycles of operation, maintenance and repair best suited to provide maximum availability for service and economy.
- (e) To sift maintenance and upkeep experience of ships and to co-ordinate and make recommendations on:-
 - (i) As. and As. with special reference to the reduction of maintenance and improvement of reliability.
 - (ii) Complements.
 - (iii) Provision of spare gear, workshop equipment and maintenance stores.
- (f) To feed back co-ordinated experience to authorities concerned with new design.

Class authorities established for different types of vessels are listed in A.P.O. 970/55.

The system will take a considerable time to develop since an enormous quantity of relevant detail must be amassed and the dates on which Class authorities can assume their full responsibilities will be communicated to the appropriate Administrative Authorities in due course. The aim is to take over step by step and the degree of responsibility already assumed will also be found in A.F.O. 970/55.

One very important function of the Class Authority will be to advise on maintenance records. It may be that some of the registers we shall meet further on in this chapter will go by the board. Forecasting what will be retained, altered or dispensed with altogether would be at best a chancy business but the Electrical Register (1952) and its companion the Planned Maintenance (Electric) Schedules are confidently tipped by the stables as being good stayers. The Electrical Log and Progress Book is doubtful but if properly trained and fined down may yet be in at the finish. Form S.1275 is reported as being fit but requiring some further training while the older forms of Electrical Register, since they can hardly be integrated with the new system will probably be put out to grass.

One thing is certain, whatever the final outcome you will continue to find both the old and the new systems in use for some years. It behoves you to know them all!!

We shall now proceed to look at the various Maintenance Records old and new and outline their uses.

The Electrical Log and Progress Book (S.304)

This book is not really a maintenance record at all. Its only claim to being so is that it includes a dated list of all tests on winches, hoists, lifts etc., carried out periodically by the Dockyard Officers. When writing up your Dockyard Defect List (see chapter on Dockyards and As. and As.) you should be careful to include any of these tests that are due.

The book consists of a set of loose leaf sheets which are records of:-

- (a) Ratings borne giving dates of joining, drafting, Official Numbers etc., (separate sheets for C.P.O. and P.Os. and other rates).
- (b) Recommendations for advancement to higher rating.
- (c) Examinations passed in or out of the ship by your own staff and in the ship by personnel of other ships.
- (d) Damage Control drills (full details are required) carried out.
- (e) Instruction given to the staff (in or out of the ship).
- (f) A.F.Os. concerning the Department.
- (g) Employment Register (changes in employment are the important thing here).
- (h) Events of importance and interest (e.g. "Electrical Officer threw five Queens in one throw at Poker Dice - odds against 3125 to 1").
- (j) Load tests on Winches, Hoists, Lifts etc., carried out.
- (k) Alterations and Additions completed, progressed and outstanding.
- (l) Modifications to equipment authorised by the Captain or the Electrical Officer.
- (m) Publications.

The Defect Book (S. 342)

An accurate record is to be kept in the Defect Book of all defects which develop in the Electrical Equipment of the ship and the progress of the work to make them good. The book is to be produced:-

- (a) To the Captain weekly.
- (b) At annual and paying-off inspections.
- (c) When called for by the Flag Officer or Senior Officer of the Squadron.
- (d) When called for by the Superintendent of the Dockyard after a defect list has been forwarded.

A page from a typical Defect Book is shown at the end of this Chapter. Columns 1 to 3 are self evident. In Column 4 the appropriate code letter as shown in the instructions at the front of the book should be entered. You should then decide whether the work is within the capacity of the Ship's Staff. In this connection it should be noted that capacity includes availability of the necessary stores and technical information, lifting gear etc., as well as the labour and skills involved. In general, if it is at all possible the repair should be carried out by the Ship's Staff but it should be remembered that if the defect involves so many man-hours that its repair in ship will prejudice routine maintenance of other equipment and if it is such that it will not greatly interfere with operational efficiency or the comfort of the Ship's Company it should be left for the Repair Ship or the Dockyard. Enter the appropriate letters in Column 5.

The remaining Columns are self-evident, save for the reference to the Pink List items which is explained in the chapter on Dockyards. The figure in Column 8 should be obtained from the Engineer Officer who is responsible for the final preparation of the Dockyard Defect List.

A list of work which should normally be undertaken by the Ship's Staff will be found in Q.R. and A.I. Art. 5608.

The Insulation Register

Dockyard Form D.499 records the original results obtained on insulation testing and resistance balancing of the ship's circuits and machinery. In the past it has been the custom to compile a book showing results of periodic tests carried out by the ship's staff from the lists of circuits etc., shown in D.499. The Electrical Register (1952) has to some extent superseded this book in certain ships but the Insulation Register does have the advantage of showing at a glance what the general state of the insulation of the ship is and it is therefore usually considered worth the labour of keeping up. At Annual Inspections it is usually called for by the Electrical Officer on the Staff and on balance (to turn a hideous pun) it is recommended that you should keep it. It is especially valuable in providing references when the Annual Report on the state of the ship's cables (see Chapter 2) is being prepared. Separate Power and Low Power Logs should be kept.

The Electrical Register (S. 319 and variants)

This book is usually compiled by the C.E.A. and is a long term record of all the machinery fitted in the ship. Where the Electrical Register (1952) is supplied this register is redundant.

There is no Official layout for the register but in its most common form each item of machinery is given a separate page. At the head of the page are found the name of the machine, its location, serial no., manufacturer's name, capacity, load and all other important details. The lower half of this page carries tables showing routines etc., carried out.

On the back of the page it is customary to record A. & As., Modifications, Action on Admiralty letters, due, overdue and carried out. (This part of the recording should always be done by the L.Os. writer or the Electrical Officer himself). A chronological history of the machine is also included on the back of the page, which should include all important defects.

If this book is properly kept up it can be an enormous help to the Electrical Officer in:-

- (a) Assessing the general condition of the machinery.
- (b) Preparing the Defect Book and the Dockyard Defect List.
- (c) Raising the list of A. & As. etc., required (see Chapter on Dockyards and A. & As.).

The Electrical Register (1952) sometimes called the "Kalamazoo"

Older forms of Electrical Register are gradually being replaced by the Electrical Register (1952). A.F.O. 3813/53 introduces the Register.

The Register is prepared by the Drawings & Publications Department, H.M.S. COLLINGWOOD and is peculiar to the ship for which it is prepared. It does not supersede any instructions laid down in A.F.Os., C.A.F.Os., B.Rs., C.Bs. etc.

Instructions for use

(a) General

The Electrical Register consists of one or more binders each containing a sufficient number of prepared record sheets.

The objects of the register are:-

- (i) To present clearly all information regarding the ship's electrical equipment which the Electrical Officer may require for ready reference purposes.
- (ii) To provide an easy method of recording in tabular form all electrical major maintenance work.

It will thus assist the Electrical Officer in his duties by enabling him to direct his maintenance effort to the best advantage.

The record sheets are designed to contain records taken over a period of four years or more. To ensure that the record remains intact and legible it is essential that the sheets should be handled with care. It is intended to be used only by the Electrical Officer and the Office Staff. It should be kept in the Electrical Office except when required for Captain's signature, inspection or refit conferences. No rough copy can be provided.

All entries should be made with the special ball pen provided. Never erase; cross out with a single line.

The register is supplied to the ship complete with the necessary information on all items of equipment and on electrical systems within the ship. Any inaccuracies should be corrected with the ball pen as soon as possible after receipt and the Equipment and Trials Section, H.M.S. COLLINGWOOD, informed accordingly.

When sheets are full they should be replaced by new sheets which are available on demand from the O. in C. D. & P. Dept., H.M.S. COLLINGWOOD who requires the following information:-
Type number and title of the sheets (e.g. Sheet S.4 for 7 $\frac{1}{2}$ " Fan Motor C.18). New sheets should be checked on receipt against the old and corrected if necessary. The old sheets should be kept for six months before being destroyed if they are no longer required.

Record sheets are only to be used in the binders provided.

(b) Contents

The Electrical Register contains the following sheets:-

- (i) Instruction sheet inside front cover.
- (ii) "Master" sheets with their slave sheets for such items of equipment as are identical and can be grouped. These are numbered M1, M2 and S4, S5 etc. The master sheets are printed with data and references pertaining to the group as a whole while the slave sheets are printed for the individual pieces of equipment in the group. For example a ship having four identical Hull and Fire Pumps would require one master (M3) and four slaves (S4).
- (iii) "Index" sheets. These are included for convenience to enable the user to refer quickly to the Combined Sheets which follow, and to provide tabulated information on electrical systems.
- (iv) "Combined" Sheets. These either combine the function of master and slave sheets for equipment which it is unnecessary to group (C11 to C13) or are used for recording information and tests on electrical equipment (C14 to C24).

(c) Recording

A.F.Os., C.A.F.Os., As. & As. etc., or other instructions relating to the equipment are to be recorded in the appropriate spaces on Master and Combined Sheets. It is intended that Electrical Officers should insert in the space marked "Correspondence Pack" a reference number or letter signifying which correspondence pack contains correspondence dealing with the equipment.

All maintenance routines should be recorded with date only in the routine columns of slave and combined sheets and in the column on master sheets referring to spare gear tests. Any information which has to be recorded (e.g. insulation readings) should be noted in the remarks column together with records of repair work and other items of interest. No provision is made in this register for routines which are more frequent than monthly. "Periodical" inspection and test records should be entered in the appropriate columns at periods laid down by the Electrical Officer, depending on the maintenance effort available.

Coloured metal markers are provided for attaching to the sheets in the spaces marked "D.L." (Defect List) and "Overdue for routine", etc., as follows:-

Yellow	Overdue.
Orange	In hand by Ship's Staff.
Blue	In hand by Dockyard.
Mauve	Work to be undertaken by Dockyard on next visit to Home Port, i.e. Defect List.
Red	Action required.

All spare gear transactions are to be recorded in the "Spares used" and "Replacement Action taken" columns giving dates and references.

Provision is made on Combined Sheet C.6 (Lights) for recording the replacement of lamps where special instructions exist. It is not intended that all lamp replacements should be recorded.

Sheet C.16. It is intended that a non-contact test should be made with the Director/Radar C.O.S. to "Director" to ensure non-contact between the two supplies.

The last page in Volume I of each ship's Electrical Register contains a "Monthly Inspection Sheet" which is designed to take the appropriate office stamps and signatures.

Forecast of Maintenance Routines

A throw-out sheet is attached to the last separator in each book (soft pencil entries only). This section is included to provide a ready reference to routines which are currently due. Each sheet in each separator is numbered, and, when a routine or any item is completed, this number is entered on the appropriate separator line under the month when that same routine is next due. When completed, a glance at any month will show the tests etc., due during that month. It is not considered necessary to log routines which are carried out more frequently than quarterly, since, for example, monthly routines are usually regulated by the Maintenance Section responsible for carrying them out.

Planned Maintenance Schedules and Records

The Register is planned to be used in conjunction with another volume also prepared by the Drawings and Publications Department of H.M.S. COLLINGWOOD called Planned Maintenance (Electric) Schedules and Records. The functions of these schedules are to:-

- (a) Assist the rating doing work to forestall failures and to aid him in keeping his equipment in an efficient state.
- (b) Assist the senior rating of a section to organise the work of his juniors and to record with the minimum of writing, work completed, defects disclosed and remedied, spare gear used etc.
- (c) Provide a ready means whereby the Electrical Officer can ascertain the state of maintenance in any particular section.
- (d) Provide a working record from which appropriate items can be extracted and recorded in the Electrical Register or Radio Equipment Log.
- (e) Provide a ready means of reporting the maintenance state of the ship to the Class Authority or Administrative Authority, if required.