

SECTION 7, CHAPTER 1

GENERAL PROCEDURE

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Introduction

1. Ground equipment covers a wide range of items extending from ordinary "domestic" appliances to the specialist equipment required for the servicing, testing and operation of modern aircraft. In order to maintain efficiency it is essential that all this equipment, be it simple or complex, is readily available and in a serviceable state at all times. Any failure to meet this requirement could result in the "grounding" of one or more aircraft. Because ground equipment is just as important as the aircraft on which it is used, personnel entrusted with its care and operation must make every effort to understand the working principles of the equipment and learn to handle it efficiently.

2. The servicing of most ground equipment is the responsibility of the ground equipment section but the responsibility for some particular items is often delegated, by the Senior Technical Officer, to the section to which such equipment has been allotted. It is essential that General Fitters and General Mechanics have a thorough knowledge of the methods used by the Royal Air Force to maintain and record the servicing of ground equipment.

SOURCES OF INFORMATION

Air Publications

3. The bulk of the information that will be required is contained in air publications, and any particular information can be obtained from the relevant volume or part as detailed in Section 1, Chapter 8 of this publication. Many of the air publications associated with ground equipment are listed following the foreword in the preliminaries to this publication. Information is also distributed by the methods given in the following paragraphs.

Air Ministry Orders (A.M.Os.)

4. Air Ministry Orders are prepared by the Air Ministry and published weekly as follows:

- (a) **Standing Orders (A.M.Os. "A").**
Contain orders which are valid for five years or until cancelled or superseded by another A.M.O. "A".
- (b) **Temporary Orders (A.M.Os. "N").**
These orders are valid for one year only.

Air Ministry Pamphlets (A.M.Ps.)

5. These are designed to:—

- (a) Give information in a simple form when the subjects are of a technical nature.

(b) Give information of an urgent nature not within the scope of an existing Air Publication.

(c) Give information of a temporary nature which does not justify the publication of an A.P.

Air Diagrams (A.Ds.)

6. These consist of technical or administrative information in diagrammatic form.

Special Technical Instructions (S.T.Is.)

7. Occasions arise when serious defects occurring in R.A.F. equipment necessitate the immediate issue of instructions to all units using or holding the equipment. Such instructions, which may be issued by the Air Ministry in the form of signals or memoranda, are known as Special Technical Instructions, Servicing Instructions or Preliminary Warnings.

8. The issue of a Special Technical Instruction is confined to circumstances in which the action required may be urgent and is non-recurrent. The S.T.I. contains all the information that is required, including the priority of application; compliance with S.T.Is. on ground equipment must be recorded on Form 4826—Modification and S.T.I. Record, Ground Equipment.

Servicing Instructions (S.Is.)

9. Some defects may not be evident on the first inspection, and a limited number of inspections will be needed to cover the prospect of such a defect arising. Thus, a Servicing Instruction is issued when the defect is likely to develop over a period of time, and the action required is urgent and recurrent.

10. The S.I. contains all the information that is required, including the priority of application. Compliance with S.Is. on ground equipment (class 1) requires the initial inspection to be recorded in the "Change of Serviceability and Repairs" section of Form 4021A—Record of Servicing Class 1 Ground Equipment. A Servicing Instruction is intended to be current only until a modification can be prepared to completely rectify the fault or, if this is not appropriate, until either the Instruction can be introduced as a permanent item in the servicing schedule, or it is found to be unnecessary.

Preliminary Warnings

11. A preliminary warning is a serially numbered message by which instructions of an important and immediate nature are promulgated when the known evidence is insufficient to compile a S.T.I. or S.I. The message may be informative only and the application will be given in the text. No standard form is prescribed for the issue of preliminary warnings.

Modifications (MODs.)

12. The modification of equipment is a process adopted to improve reliability and effectiveness, involving alteration of the original drawings of the structure or component, or the installation of new equipment. Modifications are also introduced to ease production and to facilitate servicing. In this manner the equipment is being continually improved and modernized, and in addition may be made suitable for roles other than those for which it was originally intended. Royal Air Force equipment may be modified only when such modifications have been approved by the appropriate modifications committee and promulgated to the Service, or when they have been approved by the Air Ministry.

13. Modifications are promulgated in leaflets which are inserted in the Vol. 2 of the relevant Air Publication, and they contain all the necessary information including:—

- (a) Classification.
- (b) Who is to embody it.
- (c) When it is to be done.
- (d) Sequence of operations.
- (e) Man hours required.
- (f) Drawing or print if applicable.

14. **Classification.** Except in the case of Class 1 modifications (see sub-para. (a)), it is not necessary to incorporate modifications immediately. Each modification is classified to indicate the urgency and the period in which it is to be embodied. The classification is decided after a careful study of all the factors associated with its introduction. The system of classification is as follows:—

- (a) **Class 1.** These modifications are prompted by considerations of safety. They are compulsory and are to be embodied immediately.
- (b) **Class 2.** These are important modifications to remedy defects or weaknesses

that impose operational limitations. When the new parts are received the modification is to be embodied within two months or at the next servicing, whichever is the sooner.

(c) **Class 3.** Class 3 modifications are of a simple nature, and are to be embodied within four months of receipt of parts.

(d) **Class 4.** A modification that improves design. It is usually embodied in future supplies of stores and equipment when stocks of unmodified spares are exhausted.

(e) **S.O.O.** This modification, which indicates "special order only", is applied when it is necessary to satisfy a limited operational requirement, and is not embodied on all of a particular type of aircraft or equipment.

SERVICING

Introduction

15. The complexity of ground equipment, and the need to ensure that it is kept in a serviceable condition, necessitates a simple uniform system for its servicing. The following paragraphs define the servicing procedures to be adopted, the servicing records which are to be maintained and the responsibilities of personnel.

Classification for Servicing

16. For servicing purposes each item of ground equipment is classified as "Class 1" or "Class 2" as follows:—

(a) **Class 1.** Consists of ground equipment for which servicing schedules are necessary. These schedules are usually issued in the appropriate Air Publication on the equipment concerned. Equipment in Class 1 includes compressors, servicing trolleys, etc.

(b) **Class 2.** Consists of ground equipment for which servicing schedules are not necessary, such as ladders, jacks, engine stands, etc.

Periodicity of Servicing

17. **Class 1.** Class 1 items of ground equipment are serviced on a calendar basis in accordance with the appropriate schedule. When the intensified operation of any particular item of equipment is necessary, servicing may be carried out at hourly intervals at the discretion of the Senior Technical Officer or specialist officer. At

such times the current hours are to be related to calendar periods as follows:—

Daily	—	Daily Servicing
25 Running Hours	—	Weekly Servicing
100 Running Hours	—	Monthly Servicing
300 Running Hours	—	Quarterly Servicing

18. **Class 2.** Class 2 ground equipment is serviced on a calendar basis, either monthly or quarterly, as follows:—

(a) **Monthly Servicing.** Equipment in which moving parts are involved, e.g. jacks, electric hand drills, vacuum cleaners, lamp heaters.

(b) **Quarterly Servicing.** Equipment which has no moving parts, e.g. ladders, platforms, picketing gear, mainplane mats.

Control

19. To assist the control of ground equipment which is widely dispersed throughout a Royal Air Force Station, a complete record of holdings is maintained using strip index equipment. Ideally these records should be maintained by Technical Control, but they may be held by the Ground Equipment Section. All ground equipment carries a unit serial number, these numbers having been allotted in blocks from the ground equipment register which is set out in order of section and reference numbers of the equipment.

20. **Title and Disposal Strips.** The strip index equipment consists of a metal frame into which coloured strips can be fitted. On a $\frac{1}{2}$ -in. wide salmon coloured index strip are typed details of the section and reference number, description, authorized scale and total quantity of each type of item held; these strips are usually referred to as "Title Strips". On a $\frac{1}{2}$ -in. wide index strip (coloured green for Class 1 equipment and buff for Class 2 equipment), are typed the local serial number and the location of each specific item of equipment; these strips are usually referred to as "Disposal Strips". The title strips are arranged in the frame in numerical order of section and reference numbers, and the disposal strips are fitted in numerical order of their local serial numbers below their appropriate title strips, as shown in Fig. 1.

		SCALE	QTY.	HELD	
4F/1500	COMPRESSOR, AIR, TYPE L	3	3		- SALMON
WB/6	A.S.F. NO. 3 HANGAR				} GREEN
WB/7	ELECTRICAL SECTION				
WB/8	STATION WORKSHOPS				
		SCALE	QTY.	HELD	
4F/1668	TROLLEY, SERVICING, ELECTRIC	5	3		- SALMON
WB/19	ELECTRICAL SECTION				} GREEN
WB/20	"A" FLIGHT 74 SQDN				
WB/21	"B" FLIGHT 74 SQDN				

Fig. 1. STRIP INDEX

Servicing Records

21. **R.A.F. Form 4021A.** Servicing done on Class 1 ground equipment is recorded on R.A.F. Form 4021A (Record of Servicing Class 1 Ground Equipment); a separate form is used for each item of equipment. The current form, which lasts for a period of one month, is kept in a special holder which is attached permanently to the equipment to which it refers. Form 4021A provides for full details of the item to be entered, and the name(s) of the personnel responsible for the servicing. Daily and periodic servicings, repairs and replacements are recorded and signed for in the appropriate places; state of serviceability is also indicated on the form. At the end of its period of use (one month) the form is filed for a further period of six months.

Note.—R.A.F. Form 4021A is not for the following items of equipment for which special servicing records are provided:—

Link Trainers	—	Forms 1139 and 1451
Lifting Tackle	—	Forms 3806 and 3806A
Ground Radio Equipment	—	Forms 4070 and 4547

22. **R.A.F. Form 4825.** This form (Record of Servicing Class 1 and 2 Ground Equipment) is a master card used as a control document for both Class 1 and Class 2

ground equipment. These forms are filed in pockets mounted in a Kardex visible edge record tray which is maintained by Technical Control or by the Ground Equipment Section; thus the state of all ground equipment can be seen at a glance. A separate F. 4825 is raised for each item of Class 1 equipment; these are kept up-to-date by reference to the current F. 4021A. In the case of Class 2 equipment it is quite common practice to use one F. 4825 for a number of items, provided that:

- all have the same section and reference number;
- they can be serviced together.

Full servicing details must be entered and signed for.

23. **Red Signal.** A.P. 3158 (Technical Services Manual) states that unserviceability is indicated by a plain red signal immediately to the left of the January space. The reasons for unserviceability and details of action being taken to service the item may, if desired, be recorded on a slip of paper and inserted in the visible edge to the right of the red signal. In actual practice, placing a red signal to the left of January usually indicates that the item is unserviceable for reasons other than normal servicing, e.g. awaiting spares. Again, reasons for unserviceability, etc., can be indicated as already described.

24. **Green and White Signals.** Coloured numerical signals, green for monthly and

JAN	FEB	MAR	APL	MAY	JUN	JUL	AUG	10G	10W	NOV	DEC	G = GREEN W = WHITE
JAN	FEB	MAR	APL	MAY	JUN	JUL	AUG	10G	OCT	10W	DEC	
JAN	FEB	MAR	APL	MAY	JUN	JUL	11G	SEP	11W	NOV	DEC	
JAN	FEB	MAR	APL	MAY	JUN	JUL	11W	11G	OCT	NOV	DEC	
JAN	FEB	MAR	APL	MAY	JUN	JUL	12G	SEP	12W	NOV	DEC	
JAN	FEB	MAR	APL	MAY	JUN	JUL	12G	SEP	12W	NOV	DEC	

Note:—The heavy line has been inserted to illustrate the change of line at this date.

Fig. 2. VISIBLE EDGE SIGNALS

white for quarterly servicings, are inserted over the spaces marked with the months to indicate the next servicing. The number indicates the day of the month on which the servicing is due.

25. R.A.F. Form 4825 has a cut-out on the top edge which enables it to be used in the facing position. When used as a facing card the servicing of the item concerned is controlled and carried out in accordance with the signals in use for the item recorded in the master card position.

26. **Class 1 Ground Equipment.** One card is raised and maintained by either the Technical Control Section or the N.C.O. in charge of the Ground Equipment Bay (as decided by the S.T.O.) for each item of Class 1 ground equipment held on the Station. The cards should be arranged in the visible edge pockets in numerical sequence of dates, so that all items which are due for servicing on the first day of the month are at the top, and so on down to those due on the last day of the month which will be at the bottom. As an example, on the 10th August the visible edge signals would appear as shown in Fig. 2.

27. **Class 2 Ground Equipment.** Cards are raised and maintained by Technical Control, by the Ground Equipment Bay or by individual sections, for all items of Class 2 ground equipment. These cards are housed in visible edge pockets but, because servicing occurs on a monthly or on a quarterly basis, only one coloured signal is used for each card. The cards should be housed in blocks of pockets for each section having the equipment on charge, and if possible kept in

separate trays. The first block of pockets should contain the cards of items requiring monthly servicings; the second block should contain those requiring quarterly servicings. To facilitate servicing, the cards in the latter block should be staggered by division into three parts, one part for each of the three months of the quarter.

28. **Weekly Detail—Routine Servicing of Ground Equipment.** If the records are maintained solely by Technical Control, a weekly detail "Routine Servicing of Ground Equipment" pro-forma is prepared. This is used to advise user sections, at the beginning of the week, when and what routine servicings are due. At the end of the week the completed forms should be returned to the Control Room. On the reverse side of the form there should be a certificate, the signing of which signifies that the ground equipment listed overleaf has been serviced as instructed. The pro-forma should also contain a list of ground equipment that is unserviceable, together with information of the remedial or other action being taken. Further information that is required is a list of ground equipment that is beyond the user's capacity to repair.

29. **R.A.F. Form 4826—Modification and S.T.I. Record, Ground Equipment.** R.A.F. Form 4826 is a facing card which is used only for those items for which modifications and/or S.T.Is. have been issued. It is filed in the back of the pocket in the visible edge recording tray and facing the F. 4825 to which it refers.

30. **Disposal of Servicing Records.** When an item of ground equipment is returned to
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the Equipment Section or is transferred from one unit to another, it must be accompanied by its current servicing records as follows:—

(a) **Class 1 Equipment.** F. 4021A; F. 4825; F. 4826, when applicable.

(b) **Class 2 Equipment.** F. 4825; F. 4826, when applicable.

When a unit receives ground equipment with these forms attached, new forms should be opened using the unit's own serial numbers. Completed servicing records for all ground equipment are to be retained in the Technical Control Section for six months, and then disposed of in accordance with Q.R. para. 2068.

Responsibilities and Duties

31. Command Senior Technical Staff Officer. The S.T.S.O. at a Command Headquarters is responsible for the following:—

(a) Determining the periodicity of servicing of all equipment in Class 2.

(b) Preparing and issuing provisional servicing schedules for ground equipment of a Class 1 nature pending receipt of the official air publication.

(c) Issuing "General Servicing Instructions" in respect of Class 2 ground equipment where no official air publication exists.

(d) Informing S.T.Os. of the servicing classification of new equipment that is introduced into the Service.

32. Senior Technical Officer. The S.T.O. is responsible for the following:—

(a) Maintaining a register of all ground equipment.

(b) Allotting serial numbers to all items of ground equipment.

(c) Ensuring that all ground equipment is on charge to Units, Flights or Sections, and for informing the users of such equipment of the servicing classification.

33. Specialist Officers. Specialist Officers in Squadrons, Flights or Sections are responsible for:—

(a) The allocation of each item or batch of items of equipment to an individual of the appropriate trade for servicing purposes. Where more than one trade is involved the appropriate additional tradesmen are to be allocated.

(b) Checking the servicing records monthly.

(c) Ensuring that equipment is being serviced in accordance with the authorized servicing schedules or instructions.

34. Tradesmen. Tradesmen are responsible for servicing each item of ground equipment allocated to them as follows:—

(a) Class 1 ground equipment is serviced by the responsible tradesmen in accordance with the servicing schedule. Volume 1 of the appropriate air publication contains precautionary notes for users of the equipment; tradesmen are required to read and sign as having read such notes before they are permitted to operate the equipment for the first time.

(b) Class 2 ground equipment is serviced monthly or quarterly by the responsible tradesmen, in accordance with the procedure laid down in the relevant air publication under the heading "General Servicing Instructions" or, where no official air publication exists, in accordance with Command instructions.

Equipment in Vehicles

35. Equipment contained in specialist vehicles is allocated to the appropriate tradesmen within the Unit, Flight or Section holding such vehicles on charge. The parent M.T. Servicing Section is responsible for the servicing of pumping equipment in refuelling and re-oiling vehicles.

R.A.F. FORMS USED WITH GROUND EQUIPMENT

Form 6	—Requisition for Internal Manufacture and Repair
Form 108	—Receipt for Equipment (Temporary Loan)
Form 668	—Record Card—Loan to Individuals
Form 673	—Internal Exchange Voucher
Form 674	—Internal Demand and Issue Voucher
Form 675	—Internal Return and Receipt Voucher
Form 1083	—Job Card
Form 1136	—Workshop List of Stores Required
Form 1137	—List of Stores Available
Form 1138	—Workshops Hastener
Form 1505	—Workshops Stores Demand (Flight Stores)
Form 3806	—Register of Lifting Tackle
Form 3806A	—Record of Inspection—Lifting Tackle

GENERAL PROCEDURE

Form 3910	—Returned Equipment Serviceable	Form 4021A	—Record of Servicing Class 1 Ground Equipment
Form 3910A	—Returned Equipment Repairable on Station	Form 4157	—Form 6 Register
Form 3910B	—Returned Equipment Repairable at Depot	Form 4426	—Workshops Requisition for Modification and Repair
Form 3910C	—Returned Equipment Scrap	Form 4825	—Servicing Record Class 1 and Class 2 Ground Equipment
Form 3910D	Returned Equipment Repair, Special Order	Form 4826	—Modification and S.T.I. Record Ground Equipment

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