

PART 1

PHASE 6

HISTORY OF RCAF TRADES STRUCTURE

Pre Second World War

1 The pre Second World War RCAF Trades structure was patterned after the RAF system. RAF trade qualification standards, terminology, training manuals and methods were followed almost exclusively. Some additional trades and trade qualifications have been developed to meet conditions peculiar to the RCAF, but these were in the minority.

Wartime

2 The vast expansion of the RCAF during the Second World War necessitated the introduction of many new trades to meet the demands of an increasingly complex Service. Specialization on certain types of equipment or employment developed within some trades, but the tradesmen concerned continued to be classified by broad trade qualifications and trade training broad in scope so that the tradesman could be employed on any phase of work within his trade at any type of unit.

Post War

3 Under the post war trades structure, the scope of the major trades was again very broad to conform with the policy of providing for a highly trained nucleus force of skilled tradesmen capable of rapid expansion in an emergency, and for reasons of great economy in personnel strength.

4 Subsequently, it became evident that this type of trades structure was not entirely satisfactory, because:

- (a) the broad scope of many of the trades made it difficult for a tradesman to become equally proficient on all equipment or functions of his trade.
- (b) it was not possible to train tradesmen of the Reserves to the same standards as Regular Force tradesmen, and
- (c) the trades structure was not adaptable to wartime conditions because of the lengthy training time and high academic standards required.

5 In Nov. 49 the RCAF Trades Structure Committee was organized with the object of developing a more realistic trades structure and revising trade specifications to show exactly what was required at each trade group level so as to provide a sound basis for personnel selection, training, trade examining, establishments, and career planning.

Joint Services Job Analysis Committee - (JSJAC)

6 It was considered necessary to have as much tri-service uniformity as possible in Service occupations, both for peacetime and mobilization. This led to a decision by Defence Council to conduct a study of all Service Occupations on a standard tri-Service basis using accepted job analysis methods. To ensure standardization, the Joint Services Job Analysis Committee was formed, consisting of representatives from each of the Canadian Forces, the Defence Research Board, the Department of Labour and the Unemployment Insurance Commission.

Job Analysis

7 Job Analysis is a recognized technique for revealing and recording the vital facts about a job. There are a number of different ways in which it can be conducted. The one selected for use by the Services is known as the job inventory method. By this method, facts regarding an individual's occupation are documented by the individual himself on a specially prepared form. When this form is completed by a large number of persons in the same trade or occupation and validated by trade experts, the resulting data provides accurate and reliable information about the trade.

8 Using this method, the RCAF conducted a job analysis study at 25 major units selected by statistical analysis to ensure an adequate coverage of all the Service occupations. Approximately 4,000 airmen representing every trade group and rank level in all the existing RCAF trades took part in this programme. On the same basis of the data obtained, and with the advice and assistance of selected trade specialists a revised trades structure has been developed for the Regular Force, Reserves, and Wartime Force, and new trade specifications have been written according to a standard tri-Service format. Job analysis results were validated by specialist officers and NCOs at each unit, through spot checks by the DRB component of JSJAC, by field trade specialists who assisted in writing the new trade specifications and finally, by circulating the specifications in draft to the "users" all CMA and representative units for study and comment prior to final approval and publication in CAP 471 RCAF Trade Specifications.

New RCAF Trades Structure

9 The major developments and changes in the RCAF Trades Structure resulting from this study are as follows:

(A) A trades structure adaptable for use in the Regular Force Reserves, and Wartime Force has been introduced. Transition to the wartime trades structure will be simple and straightforward on mobilization.

(B) Individual trades have been changed to conform with actual requirements shown by job analysis. A few trades that were no longer necessary have been deleted; some new trades have been introduced; and the trade specification content changed in many instances.

- (c) Trades have been associated with one another on a functional basis, thus clarifying their relationship for purposes of initial classification and assignment, and subsequent progression. This arrangement will provide a sound framework for ready expansion or contraction if future changes in trade requirements necessary.
- (d) Trades which are broad in scope have been classified by specialties making it possible to specify the requirements for trade training, employment and examining more exactly and to readily identify the special qualifications of any tradesman.
- (e) A trades classification and coding system has been developed to identify each tradesman's qualifications by machine records, and to show the trade qualification requirements for each position on personnel establishments, thereby facilitating assignment of tradesmen to positions for which they are best qualified.
- (f) The information contained in the trade specifications is sufficiently detailed to provide a complete picture of the requirements at each trade group level, so that each tradesman can see exactly what he should know and be capable of doing to advance in the Service.
- (g) Related occupations in the other Services and in civilian life have been shown for each trade group as a guide to recruiting officers and to those responsible for the most efficient utilization of available manpower on mobilization. This will also assist airmen to re-establish themselves in civilian occupations following demobilization.

10 The New RCAF trades Structure consists of 81 Regular Force, and 91 Reserves and Wartime Force trades. The 1946-50 trades structure consisted of 82 trades.

RCAF TRADES CLASSIFICATION AND CODING SYSTEM

Introduction

16 The RCAF trades classification and coding system has been developed from a tri-Service study of Canadian Forces trades and occupations and follows established principles of trade coding. It forms an integral part of the new trades structure and is used in conjunction with trade Specifications. The occupational field titles are the same for the three Services and although in some instances are not ideally suited to RCAF requirements, they represent the most satisfactory compromise. The code consists of seven digits. The first four digits are similar in meaning in all three services, and identify occupational field, career field, trade, and trade group in that order. The last three digits applied to

the RCAF identify primary specialty, rank, and secondary specialty or special qualifications respectively. The other services do not necessarily use the last three digits in this manner.

Purpose of the Trades Classification and Coding System

The RCAF trades classification and coding system has been developed to serve the following purposes:

- (a) To indicate by numerical sequence the functional relationship of RCAF trades one with the other, and with corresponding trades in the other services.
- (b) To provide a means of readily recording and identifying particulars about an individual's trade qualifications on machine and other service records. The selection and placement of personnel is facilitated by coding personnel establishments according to the qualifications required for each position.

Definition of Coding Terms

18 Terms and phrases which are fundamental to the trades classification and coding system are defined as follows:

- (a) Occupational Field means a grouping of RCAF career fields on the basis of functional and occupational relationship. (APP "A" contains a complete list of occupational fields and their definitions.)
- (b) Air Force Career Field (AFCF) means the field of opportunity for airmen to progress in trade group and rank within a trade or family of trades related by function or similarity in basic knowledge and skills.
- (c) Air Force Trade (AFT) means a service occupation embracing a particular sphere of duties and tasks requiring basically similar knowledge and skills, as defined in current trade specifications.
- (d) Trade Group means a specific level in a trade or trade specialty denoting the degree of proficiency attained by a tradesman as certified by an authorized trade examination.
- (e) Air Force Trade Specialty (AFTS) means a classification of trade according to main types of employment, by function or by equipment categories, to facilitate identification of an airman's special qualifications acquired through practical experience and/or special training. (The fundamental knowledge, skills and abilities are common to all specialties by which any one trade is classified and tradesmen can be

converted from one specialty to another with a limited amount of experience on the job.

- (f) Special Qualifications means special skills or abilities obtained through special training and/or experience which are not classified as trade specialties, such as instructor, and helicopter maintenance.
- (g) Air Force Trade Code (AFTC) is a seven digit code which identifies the occupational field, career field, trade, trade group, primary specialty, rank, and secondary specialty or special qualifications.
- (h) Special Employment means employment which is out of the ordinary, but which is still peculiar to the trade, such as flight engineer and AID employment.
- (j) Primary Trade Specialty is a trade specialty in which an airman is qualified up to the standard of the trade group he holds and in which he is normally currently employed.
- (k) Secondary Trade Specialty is a second trade specialty in which an airman is qualified by reason of previous training and/or experience, but in which he is not currently employed.

Allotment of Code Digits

19 The Air Force Trade Code (AFTC) consists of seven digits in each of which figures from 0 to 9 may be used, eg; in the AFTC 5023433 the figure 5 is in the first digit and figure 0 is in the second. The significance of each digit is as follows:

- (a) The First Digit identifies the occupational field of which there are nine, bearing the figures 1 to 9 inclusive.
- (b) The Second Digit identifies the career field. There is a maximum of ten career fields in any one occupational field bearing the figures 0 to 9 exclusive.
- (c) The Third Digit identifies the trade. There is a maximum of nine trades in any one career field, bearing the figures 1 to 9 inclusive. When the figure 0 is used in the third digit, it signifies the career field as a whole.
- (d) The fourth Digit identifies the trade group as follows:
 - (i) the figure 0,1,2,3, and 4 in the fourth digit represent gps "S" 1,2,3, and 4 respectively and

(ii) the figures 6, 7, 8, and 9 in the fourth digit represents provisional gps 1, 2, 3, and 4 respectively.

(e) The Fifth Digit normally identifies the primary trade specialty or, in certain instances, special employment, the figure 9 indicates that:

- (i) there are no specialties in the trade, or
- (ii) a trainee has not yet qualified in any trade specialty, or
- (iii) an advance tradesman has mastered all specialties of his trade.

Note: Where neither courses nor trade examinations covering all specialties have been made available, the following is to apply:

A tradesman of Cpl rank who have attained the highest grouping in their trade (exclusive of gp 4) may be allotted "0" in the fifth digit of their AFTC when considered by a unit Board of Officers to be proficient to the highest group level in all specialties of their trade;

B for ranks above Cpl, "0" shall be allotted in the fifth digit of the AFTC at the level where all specialties combine. This normally occurs at the Sgt. level, but refer

It can be seen from the first four digits of the AFTC which of the foregoing meanings is applicable. The significance of other figures in the fifth digit is explained in the individual trade specific allocations. (See Chap 4 for initial allocation and subsequent changes of figures identifying primary trade specialties and special employment.

(f) The Sixth Digit identifies classification or rank. The figures 0 to 7 inclusive in the sixth digit signify AC2 to WO1 respectively. Capital "A" at the end of the AFTC signifies acting rank.

(g) The Seventh Digit identifies the secondary trade specialty or a special qualification as follows:

- (i) The figure 0 indicates that no secondary specialty or special qualifications as follows:
- (ii) The figures 1,2,3, or 4 used in the seventh digit identify the same trade specialties as they do when used in the fifth digit, but in this case, they represent a secondary specialty instead of a primary specialty. The same figure, therefore, with the exception of 0 cannot appear simultaneously in both the fifth and seventh digits of an AFTC.

- (iv) Figure 8 identifies current employment as an instructor in the trade and / or trade specialty shown by preceding digits.
- (v) Figure 9 identifies a Senior Technician, i.e. a skilled enrollee who has been granted his rank because of his technical ability. This applies to the wartime trades structure only.

See Chapter 4 for allocation and changes of figures identifying secondary trade specialties and special qualifications.

Number of Digits to Use in AFTC

21 The minimum number of digits to be shown in the AFTC for different purposes is as follows:

(a) Seven digits are to be shown in DROs when an airman is first allotted an AFTC and whenever any subsequent changes are made. If the airman does not possess a secondary specialty or special qualifications, the figure 0 must be shown in the seventh digit to ensure that all AFTCs on machine record cards are of uniform length.

(b) Five digits may be shown when the code is employed for purposes that do not concern the personnel records and do not require identification of rank or secondary specialty, eg, when referring to a group of airmen in a particular trade, trade group, and primary specialty with the addition of the sixth digit, reference can be made to a particular position on an establishment or, as in the case of CAP 471, RCAF Trade Specifications, to the particular rank to which the specifications apply.

22 Every airman is to be allotted a seven digit code and his records are to be annotated accordingly after promulgation in DRO's. The method to be used for classifying and coding an airman is given in Chap. 4.

Uses of the Trades Classification and Coding System

23 The following are examples of how coding system is used.

- (a) Establishments - the trade qualifications required for the various unit positions are shown in the unit establishments by the applicable trade code.
- (b) Posting and Careers
 - (i) Suitably qualified tradesmen can be readily selected to fill establishment vacancies by means of the coding system used with machine records.

(c) Selection and Manning

(ii) The system provides the Canadian Forces and the department of Labour with a means of identifying and comparing service trades with civilian occupations, providing a valuable aid to effective selection in the even of mobilization and rehabilitation of personnel on demobilization.

(d) Training - Training courses can be related and identified by using numbers corresponding to the classification code.

(e) Planning - The availability of complete statistics from machine records concerning the trade qualifications of personnel facilitates the planning for current and future activities.

24 The classification and coding principles explained in this chapter apply in general to all trades. Any deviation for a specific trade is explained in the specifications for the trades concerned.

CLASSIFYING AND CODING PERSONNEL

RECRUITING UNITS

25 Enrolees are not to be allotted AFTCs at RUs, although part of the code may be used by the RU for administrative purposes to indicate the occupational field, career field, or trade into which has been enrolled.

26 Selection methods, contents of attestation message, and DRO action at RUs are to be in accordance with current AFMOs.

Manning Depot

27 Enrolees are normally to be classified and assigned to a career field or specific trade at PSU (A). However, there will be enrolees for whom selection to a career field or trade will not be possible until a late stage of training at a trade school (eg those selected for electronics training) Such personnel will be identified by a special code numbers as follows:

- (a) 9990000 - Basic Airman - identifies unskilled enrolee prior to selection at PSU (A) into a specific trade or for trade training.
- (b) 4000000 - Basic Electronics - identifies airman selected for basic electronics training prior to selection at trade training.

(c) 2600000 - Basic Communication Operatons - identifies airman selected for communications operations training prior to selection at trade school into a specific trade.

In all cases, the airman is to be allotted a seven digit AFTC before he leaves MD, with the first three digits showing the extent to which selection for a trade has been made. If an airman by passes MD because of enrolment as a skilled tradesman, he is to be allotted his initial AFTC at the unit to which he reports.

Trade Schools

28 When an airman has been allotted a seven digit AFTC at a MD, no further change is required until he graduates from a trade school at gp 1 level, unless he becomes eligible for reclassification to AC1 or LAC before graduation. For the latter, the sixth digit of this AFTC is to be amended by appropriate unit DRO action.

29 Tradesmen will graduate from trade schools in one of the following categories:

(a) Those who have the minimum length of service as prescribed in AFAOs are therefore eligible for gp 1. Appropriate entries are to be promulgated in DROs under "Pay - Remustering" showing remuster to gp 1 and, if applicable, classification to AC1 with the new AFTC, eg, AFTC 5021010.

(b) Those who do not have the minimum length of service as prescribed in AFAOs and are therefore not eligible for gp 1 pay. Entries are to be promulgated in DROs under "records - AFTC" showing the figure 5 in the fourth digit to indicate the tradesmen are qualified but not eligible for gp 1 pay, eg, AFTC 5025000. When eligible for gp 1 pay, the unit on whose strength the airman is held to promulgate a DRO entry under "Pay - Remustering" authorizing trade gp 1 pay, and amend the AFTC to show the figure 1 in the fourth digit in place of figure 5. An appropriate change is also to be made to the sixth digit, if applicable eg. AFTC 5021010.

30 Airmen trained in a particular specialty at a trade school are, on graduation, to be coded for that specialty in the fifth digit of the code. Airmen trained in all specialties of their trade are not to be allotted a primary specialty at the trade school. The first unit to which they report after trade school is to amend the AFTCs to show the figure in the fifth digit appropriate to their specialty employment.

Unit Board of Officers

31 The CO is responsible for ensuring that each airman on his unit is correctly classified and coded in accordance with his current qualifications. The CO is to convene a board of officers composed of one or more officers together with one or more WOs or senior NCOs when required to authorize changes to the fifth and seventh digits of airmen's AFTCs. Proceedings of the boards of officers are to be retained on the unit for a period of two years after which they may be destroyed.

32 Changes to other than the fifth or seventh digits of an airman's AFTC may be made without the authority of a unit board of officers.

33 Any changes to an airman's AFTC requires promulgation of an appropriate DRO entry.

Changes or Primary Specialty

34 Tradesmen coded in one specialty may be employed in any other specialty of their trade at the discretion of their CO when the occasion demands, but their employment should normally be within their own specialty to achieve maximum working efficiency.

35 An airman is always to be trade examined on the primary specialty indicated by the fifth digit of his AFTC. If an airman is regularly employed on a specialty other than his primary specialty for a period commencing within six months of his being eligible for a trade examination, he may request a change to the fifth digit of his AFTC, or consent to a change initiated by the unit board of officers providing they consider proficient in his new specialty up to his current group level. He may withhold his consent to a change to the fifth digit within this period and be trade examined on the old specialty if he so chooses.

36 Upon completion of six months, employment on a new specialty, the unit board of officers is to authorize an appropriate change to the fifth digit of an airman's AFTC and his next trade examination is to be on that specialty.

37 When airmen in trades classified by specialties have successfully completed a course on all specialties of their trade at the group level where the specialties combine, or have passed a comparable qualifying examination, they are to be allotted the figure "0" in the fifth digit of their AFTCs. The primary specialty that the figure "0" replaces can be shown in the seventh digit.

Change of Secondary Specialty

38 Secondary specialties will usually be ex-primary specialties, but they can be acquired by a tradesman through experience gained from a working association with another trade specialty while actually being employed in his primary specialty. A secondary specialty in a trade that progresses to gp 3 or 4 may be shown in the AFTC if the airman in a Gp 2 trade may have a secondary specialty shown in his AFTC if he is proficient to at least gp 1 level. For all others the figure "0" must be shown in the seventh digit unless a special qualification is applicable.

39 There will be instance, particularly for senior NCOs, when the tradesman, though previously qualified in a particular specialty, will have had little working association with the specialty for a considerable time. For these, it is advisable to allow the figure "0" in the seventh

digit in order to present an accurate picture of the tradesman's practical ability.

Special Qualifications

40 A special qualification always takes precedence over a secondary specialty in the seventh digit of an AFTC, if an airman possesses both. However, unlike secondary specialties, a special qualification is only to be recorded in the AFTC while the airman is so employed, eg. if an instructor returns to his regular trade duties, the figure "8" is to be dropped from the seventh digit of his code and replaced by his previous secondary specialty figure.

41 Personnel in the Senior Technician category (wartime only) are to be identified by the figure "(" in the seventh digit of their AFTCs. If trade specialties are involved, the fifth digit of the code is to identify the specialty in which the senior technician is proficient. The figure "(" in the seventh digit is to be dropped when the airman meets the normal requirements of the senior NCO as prescribed in the specification for his trade.

Special Employment

42 Special employment is to be shown in an airman's AFTC only while he is so employed. Upon cessation of special employment, the airman's previous primary specialty figure, if applicable, is again to be shown in the fifth digit of his AFTC.

43 If an airman in a trade that is classified by specialties is placed on special employment before having attained top outright grouping for his trade, he is to retain his primary specialty figure in the fifth digit of his AFTC rather than show special employment, to provide a guide for future trade examinations.

44 Tradesmen employed on AID duties at technical services units are carefully selected and require special training on inspection procedures, and it is desirable to identify such employment in the airman's AFTC. The figure "9" in the fifth digit of the code has, therefore been reserved to signify special employment on AID duties. Personnel employed at SDs, RDs, and other units on unit inspection duties do not receive special training and do not acquire the specialized knowledges of the TSU inspector and are not, therefore, to be allotted the figure "9" in the fifth digit.

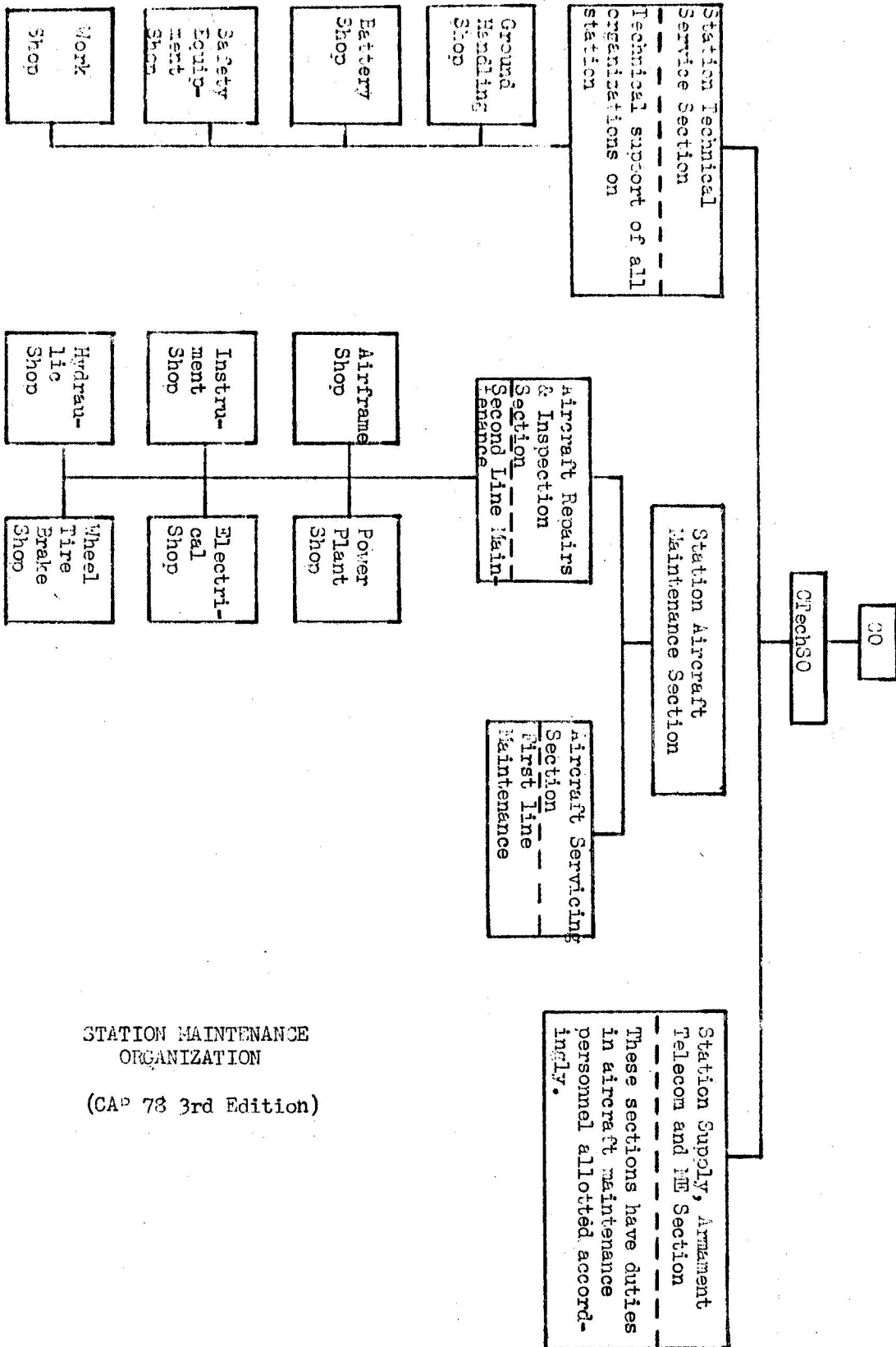
AFTCs Movement Orders and DROs

45 Movement orders are to include AFTCs of the personnel concerned so that the unit to which they are proceeding will be provided with advance information regarding their qualifications.

46 TOS and SOS DRO entires are not to include AFTCs.

Coding of Personnel - General

47. The AFTC is an active code, ie. it shows the airman's current qualifications and how they are being utilized. For this reason units are to ensure that all AFTCs for which they are responsible are accurate and kept up to date so that the information shown on machine records will be valid. It is also the responsibility of every airman to learn the significance of his AFTC and check the accuracy of every change made to it.



STATION MAINTENANCE ORGANIZATION
(CAP 78 3rd Edition)

SERVICING AND MAINTENANCE

Maintenance Organization

1 The Commanding Officer is directly responsible for the efficient functioning of any RCAF station. However, he has three specialist officers responsible to him, they are the:

(a) Chief Administrative Officer CAAdO - responsible for:

- (i) Station messing
- (ii) Medical Services
- (iii) Chaplain services
- (iv) Educational services, etc.

(b) Chief Operations Officer (COpsO) - responsible for:

- (i) Flying activities of the unit
- (ii) Training operations
- (iii) Flying control
- (iv) Ground defence
- (v) Ground Control Approach
- (vi) Runway Maintenance

(c) Chief Technical Senior Officer (CTechSO) - responsible for:

- (i) Station maintenance
- (ii) Supply
- (iii) Photo
- (iv) Construction and Engineering
- (v) Armanent

2 Station Maintenance

(a) Station Aircraft Maintenance Officer - responsible to the CTechSO for the following:

- (i) Act as CTechSO's adviser
- (ii) Plan and control maintenance work load
- (iii) Aircraft serviceability
- (iv) Ensure section commanders know their duties

(b) Officer i/c Repair and Inspection - responsible to the Station Aircraft Maintenance Officer for:

- (i) Control and administration of sections under him
- (ii) Carrying out second line maintenance
- (iii) Allocate duties to NCO's under his control

- (c) Officer i/c Servicing - responsible to the Station Aircraft Maintenance Officer for:
- (i) Control and administration of sections under him
 - (ii) Carrying out first line maintenance.
 - (iii) Maintain close liaison with flying personnel.
 - (iv) Allocate duties to NCO's under his control
- (d) Station Technical Services Officer - responsible to CTechSo for the following:
- (i) advise him on all matters pertaining to the Ground Handling shop, battery shop, Safety Equipment and workshops..
 - (ii) Plan and control work load, plus administration of sections under him.
 - (iii) Allocate duties to NCC's under his control.
- (e) Technical Administration Officer - responsible to CTechSo for all technical administration within the maintenance organization, including reports and records etc.
- (f) Master Technicians (Warrant Officers)- responsible to their respective section commanders to ensure correct procedures are being carried out in their sections.
- (g) Flight Sergeants
- (i) Supervises the work of the sergeants of similar trades.
 - (ii) To check on work of various crews occasionally.
 - (iii) Anticipate spares, tools, equipment etc.
 - (iv) Checks work progression.
- (h) Sergeants
- (i) Responsible for and supervises the work of three corporals.
 - (ii) Ensures necessary maintenance forms completed.
 - (iii) Familiarizes his crews with new orders etc.
- (j) Corporals
- (i) Responsible for technicians assigned to him as his crew.
 - (ii) Supervises and assists them to ensure work properly carried out.
- (k) Technicians
- (i) Carry out maintenance tasks.
 - (ii) Familiarize themselves with maintenance orders to ensure proper work being done.

EO 00-1-1

General

1 AFEOs are issued on the authority of the Chief of the Air Staff to provide the approved instructions on the operation and maintenance of RCAF equipment.

Responsibilities

Air Force Headquarters

2 AFHQ is responsible for:

- (a) Promulgation of broad policies affecting subject matters of AFEOs. These policies are written into AFEOs and are amended as required.
- (b) Preparation of Pilot's Operating Instructions.

Air Command and Independent Units

3 Air Officer Commanding Air Commands and Commanding Officer of Independent Units are responsible for:

- (a) The preparation and submission to the ACC Air Material Command of Proposed Engineering Orders, or changes to the existing Engineering Orders, when the desirability of necessity there to has been determined and substantiated by the Command or Unit concerned. Training Command will be responsible for the subjects matter of Engineering Orders dealing with Technical Training.

Air Material Command

4 The Air Officer Commanding Air Material Command shall be responsible for:

- (a) Procurement, preparation, publishing and distribution of RCAF Engineering Orders and amendments and revisions thereto.

Engineering Order Index

5 This index is divided into two parts and lists all the Engineering Orders authorized for use in the RCAF. It should be noted that the listing of intermin publications has been deleted from the index which is now divided as follows:

- (a) Part 1 lists all the Engineering Orders which are currently in issue.

(b) Part 2 lists all Engineering Orders that have been rescinded or replaced or renumbered.

- (i) Section A(1) is a list of EOs that have been rescinded or replaced.
- (ii) Section A(2) is a list of EOs that have been renumbered
- (iii) Section B is a list of all interim publications rescinded or replaced.

Rescinded EOs

6 An EO is not to be removed from active use or destroyed unless it is first listed as rescinded or replaced in Part 2, Section A, or B of the Index. This will be a one time listing, ie. it will appear in only one issue of EO 00-1-1.

Engineering Order Dates

7 The date appearing on an Engineering Order indicates the date the reproducible copy was sent to the Queen's Printer for reproduction. It does not indicate the date the EO is available for distribution as printing usually requires from two to three months. An exception to the above applies to Special Inspections, Special Information Bulletins and Modification Leaflets, which are made available for distribution to the field with high priority.

Security

8 Orders listed in this Index may be considered unclassified except where otherwise noted. Where the words "Restricted" "Confidential" appear in bold face type after an engineering order listing, current security regulations (CAP 425) regarding the distribution and handling of such orders are to be observed.

Engineering Orders Numbering System

9 The Engineering Order Number System as outlined in this Index is designed to assist the technicians in identifying service equipment and to indicate the authorized publications, orders, instructions, etc., necessary to operate and maintain that equipment.

10 Engineering Order numbers are divided in three parts by Section, Series and Groups e.g. EO 10A-10CA-2.

SECTIONS

(a) A section number is allotted to equipment that falls within the same class, e.g. -

- 10 - Engines
- 35 - Telecommunications.

(1) Sections are further divided into subsections, e.g.:-

- 10A - Engines - Piston
- 10B - Engines - Turbine
- 35AA - Telecommunications Airborne Equipment
- 35AB - Telecommunications - Airborne Receivers

SERIES

(b) The series number further identifies the equipment, e.g.:-

- 10A - 10 - Engines - Piston - Pratt and Whitney
- 35AA-10 Telecommunications - Airborne Navigation

(1) The series further broken down into sub series, e.g.:-

- 10-10QA- Engines - Piston - Pratt and Whitney R1830-02.
- 35AA-10APN2 - Telecommunications Airborne Navigation APN2

Groups

(c) Orders identified by the group numeral in the engineering Order System comprise, in most instances, the basic publications of a piece of equipment. At the present time these orders run from -1 to -9, -20 and -100 as follows:-

- 1 Operating Instructions
- 2 Description and Maintenance
- 3 Repair and Overhaul Instructions
- 4 Part Lists
- 5 Special Inspections
- 5A Special Information
- 6A Field Modifications
- 6B Overhaul Modifications
- 7 Maintenance Schedules
- 8 Weight and Balance
- 9 Storage, Preservation, Handling and Shipping Instructions.
- 20 Engineering Order Charts
- 100 Training Manual

(1) Groups are further sub divided, e.g.:-

- 6A List of Field Modifications
- 6B List of Overhaul Modifications
- 6A/1 and /2 Actual Details of modifications required.

Hand book

11 Engineering Orders relating to equipment other than aircraft and aero engines are, as a rule, not so extensive as to warrant producing several orders where one or two may suffice. Therefore, it is frequently possible to combine the information contained in any one or two publications

and call them Handbooks. Where a part list is added this is noted on the Cover Page. In these instances, approximate listings will be shown in the Index.

Limited Stock

12- (L) indicated Limited Stock. The publication is not to be requested except by those maintaining the specific equipment covered by the EO

Bi-Monthly Accession List

13 The Engineering Order Bi-Monthly Accession List has been introduced to advise units of those Engineering Orders which have been edited during the current month and passed to the Queen's Printer for reproduction. These Engineering Orders should be available for distribution within two or three months and are to be obtained in accordance with current issue of EO 00-5-4.

14 Requirement and Distribution procedures will be carried out as outlined in EO 00 -5 -4.

Table of Contents

15 Special Inspection, Special Information and Modification Leaflets will not be listed in the basic EO Index. They will be issued separately as a specific EO, e.g.:- EO 05-25E-5 List of Special Inspections. Canuck Mk.4. Tables of Contents are issued on an "as required" basis and will depend on the number of changes since last issue.

General EOs

16 Information applicable to specific equipment which cannot normally be considered additions to, or revisions to any of the standard groups (i.e.: -1 to -9, -20 to -100) will be issued as individual Engineering Orders commencing with -10. Example: EO 05-90A-10 Build Up Instructions Aircraft Power Package.

EO Index

17 The EO Index is re issued semi annually. EO Bi Monthly Accession Lists are currently being issued listing all new Engineering Orders which are in the Printing or Editing stage.

18 This system of standard groups does not apply to the OO Section.

19- The Index is arranged as follows:- Preface, Table of Contents, Part 1 Current Engineering Orders, Part 2 Section A and B - Rescinded, Replaced and Renumbered Orders.

20 The Table of Contents gives a ready reference for the section and series breakdown.

MAINTENANCE SCHEDULES

Types of Maintenance Schedules

- 1 (a) Periodical Inspections - in the group 7A
(b) Primary Inspections (formerly Daily Inspection) and Before Flight Inspections (BFI) in the group 7.

Periodical Inspections (Expediter O5-45B-7A, 100/400M)

- 2 (a) Provide a list of items to be inspected
(b) Permits tracing of responsibility
(c) Provides factually information for amendments.
- 3 Require initial by tradesman in column A or B

Column A is initialed when the item is serviceable and no rectification is necessary.

Column B if a component is found unserviceable, column A is marked with an "X", on its repair column B is then initialed by the tradesmen carrying out the repair. If a new component is installed, an entry will also be made in the L14-1b.

When the inspection is completed in the maintenance schedule, it is to be signed by - NCO i/c trade
- NCO i/c repair squadron
- Officer i/c repair squadron.

Between Flight and Primary Inspections

Between Flight Inspection - some form of inspection has to be carried out to determine if the aircraft is still airworthy after completing one flight and before making another. For this purpose a BFI is carried out. A signature is required for A BFI, also for fuel and oil contents in the L14-1. Items to be checked on BFIs are:-

- (a) Check the U/C locking device for proper locking and the safety ground lock pins are installed.
- (b) Undercarriage - clean U/C and nose wheel units and check for damage. Proper inflation of tires and oleo legs. Check tires for creep and cuts.
- (c) Examine under surface of tail plane for damage.
- (d) Check for hydraulic leaks.
- (e) Stow all loose articles and inspect all panels for security.
- (f) Remove all accumulations of hoar frost and ice from aerfoil surfaces prior to flight.
- (g) Assist in refueling and oiling if necessary
- (h) Clean pilot's and co-pilot's windshields.
- (j) Report the condition of the aircraft to the pilot before take-off.

5 Primary Inspections (DI)

(a) Reason - preventative maintenance
- ensures that aircraft is serviceable.

(b) When carried out

- (i) Every 24 hours if aircraft does not fly
- (ii) DI is good for 24 hours after start of first flight
- (iii) After a periodical inspection
- (iv) After aircraft is subjected to abnormal strain.

(c) Precautions

- (i) Check LL4 before carrying out DI.
- (ii) Ensure that switches are off.

NOTE: When an unserviceability is repaired, the aircraft does not necessarily require a second DI.

(d) Items to be checked on a DI are found in the -7 of the EO pertaining to that aircraft.

(e) Qualifications to sign for a DI

- (i) Group 2 and above
- (ii) Group 1 upon authorization of the CTechO

AIRCRAFT MAINTENANCE RECORD SET - L14

Introduction

1 As the following instructions are read, it will be noticed that although certain basic maintenance data must be recorded and retained units may adopt any local routine maintenance recording procedure to suit their requirements. Some of the forms provide for data which is not applicable to certain aircraft or functions. Such provision is made in order that the forms may apply to all aircraft. Where such columns or spaces are encountered, for some Command HQs to direct their units with regard to the requirement for certain data or procedures. Briefly, the intent throughout the development of this set was to provide a compact and simple record of essential maintenance operations on aircraft; to eliminate transcription wherever feasible; to reduce the accumulation of seldom, if ever, used records. Throughout this EO, reference made to Periodic Inspections includes numbered checks where such have been approved for certain aircraft.

Description - General

2 The forms comprising the set, and their full title, are listed below:

<u>Form</u>	<u>DESCRIPTION (TITLE)</u>
L14S	Binder, Aircraft Maintenance Record Set (Servicing)
L14L	Binder, Aircraft Maintenance Record Set (Log Set)
L14-1	Daily Maintenance Form
L14-1A	Minor Defect Record
L14-1B	Change of Serviceability and Rectification Record
L14-1C	Aircraft Data Sheet
L14-1X	Explosive Cartridge Record
L14-2	Aircraft Transfer Log
L14-3	Flying Time Record
L14-4	Airframe Component Replacement Record
L14-5	Airframe Special Inspection Record
L14-6	Airframe Field Modification Record
L14-6B	Manufacturers and Overhaul Modifications
L14-7	Engine Maintenance Form
L14-8	Component History Form
L14-8A	Power Plant Skeleton Log

NOTE

All forms (L14-1 to L14-8A incl.) are 8 1/2 by 11 inches (Standard EO size); loose-leaf, drilled for the binders L14S and L14L. With slight modification re punching, forms L36, L37 and L38 where required, can be included in Binder L14L. On reprinting, such forms will be revised as necessary and punched for the new binders.

3 The L14 Maintenance Record Set is applicable to all aircraft types. In order to ensure that these forms are accurately and properly compiled, NCOs are to brief all maintenance personnel on the conditions and procedures governing their use.

FOMRS L14-1 - DAILY MAINTENANCE APPENDIX "A"

4 This form is divided into six sections. Sections 1, 1A, 2, 4 and 5 contain eight numbered lines: each line represents one flight. By checking the validity of the Primary Inspection, and noting the condition of the aircraft will regard to servicing, armament, etc., entered in the applicable flight spaces, the pilot can determine the state of his aircraft prior to each flight, refer to para 41 under Instructions for Use- General.

Sections 1 and 1A

(a) Servicing Certificates, provide for recording, by flights, the state of the fuel, oil, coolant, anti-de-icer fluid, hydraulic fluid and oxygen. Such state is to be certified by signature of the airman responsible who is to enter all the indicated data where applicable to the aircraft being serviced. All personnel are warned that the greatest care must be taken to ensure that the aircraft is correctly refuelled, refer to EO-00-80-4/5 and 05-1-2D. The fuel content gauges are not to be relied upon for accuracy unless verified against the amount of fuel put into the tanks, or checked against the calculated consumption, based on the time flown since the tanks were last filled. If for any reason, the aircraft is not refuelled before a flight, the contents of the tanks are to be determined and the exact state of the fuel and oil is to be entered in the relevant columns. Where possible, dipstick readings should be used.

Section 2

(b) Armament State Certificate - is for use WHEN REQUIRED to ensure that the pilot is aware of the armament state of his aircraft prior to each flight. A qualified technician is to complete this section as follows:

- (1) When ammunition and/or bombs and/or rockets are carried on the aircraft, a brief statement regarding load or number of rounds carried is to be entered in the applicable column in section E.G.

3000 rds
6 x SCAR
2 x 500

1000 rds
6 x HVAR
8 x 11 $\frac{1}{2}$ PB

- 2 A nil entry is to be made in the appropriate column(s) where bombs and/or rocket and/or ammunition are not carried.

- 3 Other essential details regarding armament loading are to be entered in the applicable "state" column using the following code:

(a) Loaded State

GUNS - ammunition has been placed in the ammunition tanks and fed into the ammunition chutes but not connected to tensioned bolt feed mechanisms or other feed devices.

or

Ammunition has been placed in the ammunition tanks, connected to the feed mechanisms and forward travel of the breech lock is stopped by the insertion of an authorized stoppage inducing tool.

BOMBS - Bombs have been placed on carriers and crutched down, fuzing wires connected, safety pins NOT removed.

ROCKETS - Rockets have been placed on the launchers, fuzing wires connected, safety pins NOT removed, electrical firing leads NOT connected to the firing circuit of the aircraft.

(b) Armed State

GUNS - Ammunition has been placed in a gun and the release of the bolt (breech block) or the firing pin by any means will cause the gun to fire.

BOMBS - Safety pins have been removed from the bombs and bombs can be dropped live by use of the bombing and fusing switches on the jettison mechanism.

- 4 The armament technician responsible will certify this state by signature in the appropriate column.

Section 3

(c) Primary Inspection Certificate This section will satisfy the recording requirements of the Primary Inspection. Following such Primary Inspections, only the validity block will be completed on subsequent sheets, in lieu of repeating or transcribing the various technicians signatures on the daily sheets used during the period for which that inspection is valid. The validity block should normally be completed by the same person who completes the "Primary Inspection Completed" block.

- 1 The appropriate space is to be signed, not initialed, by the technician responsible, which includes crewmen as designated in AFAO 9.00/09, on satisfactory completion of the Primary Inspection. Such a signature will be a certificate that he has satisfactorily

completed that portion of the inspection indicated in the "item" heading above the space in which he signs. Where more than one technician is employed on the equipment to which the signature refers, the senior technician is to sign, and the signature will be a certificate that he has supervised and accepts responsibility for the work of the other technicians concerned. Refer to EO 00-50-7 for the required qualifications of the relevant technicians. The NCO i/c will sign in the "Primary Inspection Completed" block when he is satisfied that form L14-1 has been fully and correctly completed and that all rectified unserviceabilities have been entered in form L14-1B and that no Periodic Inspections are due.

Section 4

(d) Between Flight Inspection Certificate - This section will be used only as directed by respective Command HQs i.e. where such commands have imposed a Between, Pre or Post Flight Inspection for which the various technicians of each trade must sign, see NOTE following parts 1, (b) in EO 00-15-10.

Section 5

(e) Pilot's acceptance and Hand-Over Certificate - In the second main column "Certified Forms L14-1, -1A, -1B and -1C checked", the pilot will enter the time at which he checks the forms as to the state of the aircraft prior to each flight. His signature certifies that he is satisfied that the aircraft is serviceable and that there is adequate fuel, to enter the time and duration of his flight and is to certify under "State on Landing" that the aircraft was airworthy (S) or alternatively, that it has a minor defect (MD) or a major unserviceability (U/S); this signature also certifies that he has entered the minor defect or unserviceability in forms L14-1A or L14-1B as appropriate. IT IS ESSENTIAL THAT PILOTS COMPLY WITH THESE INSTRUCTIONS. The "Oil-Dilution" certificate will be signed by the person responsible for this operation in accordance with local instructions.

(f) The "Certified Aircraft Serviceable" column is to be used only at the express direction of Command Headquarters.

FORM L14-1A MINOR DEFECT RECORD APPENDIX "B"

5 This form provides for entries by pilots and ground personnel of defects which, if left unrectified, do not affect safety or render the aircraft unserviceable, e.g. "Aircraft flying slightly left wing low". The trade of the person entering the defect is to be indicated in the column specified on the form. When all such defects have been rectified presumably not later than the next Periodic Inspection, form L14-1A may be processed through the maintenance control room to check for recurring minor defects, and then destroyed. A permanent record of minor defects is not required. If major repairs or replacements are required in correcting the defect, the entry is to be transcribed to form L14-1B

with necessary entries as applicable to be made in the L14-4, -7, -8 and -8A.

FORM L14-1B CHANGE OF SERVICEABILITY AND RECTIFICATION RECORD APPENDIX "C"

Placing Aircraft Unserviceable

- 6 An entry is to be made in this form when:-
- (a) An aircraft becomes due for a Periodic Inspection or an acceptance check.
 - (b) A modification or special inspection, which must be done before the next flight, is received.
 - (c) Any defect is discovered which renders the aircraft unfit for flight or for its intended operational role.

NOTE

It is the responsibility of any officer or airman regardless of his employment or trade, who sees or knows of any reason which may cause an aircraft to be unserviceable, to personally make the appropriate entries in form L14-1B, "CHANGES OF SERVICEABILITY AND RECTIFICATION RECORD" of the L14, Aircraft Maintenance Record Set of the aircraft concerned, declaring it unserviceable.

7 The person placing an aircraft unserviceable will complete columns 1 to 3 of this form and ensure wherever practicable that maintenance personnel directly concerned with the serviceability of the aircraft are aware of the defect. The trade of the person placing the aircraft unserviceable is to be indicated in the second column as shown.

8 It is the pilot's responsibility to enter defects found in flight, however, all defects regardless of their nature or when or by whom found are to be recorded in the appropriate form L14-1A or L14-1B. Technicians should check entries by pilots to ensure that the defect is entered in the correct form according to the nature of the defect or unserviceability, and the circumstances involved.

9 In addition to changes of serviceability, this record is to show details of:-

- (a) Repairs - adequate description of part or assembly and details of repairs.
- (b) Replacements - nomenclature and Ref. and Serial numbers of part or assembly (if any) and reason for replacement.

- (c) Modifications and Special Inspections - The AFEO number is to be entered without further description. These are also entered in forms L14-5, -6, -6B, -7, -8 or -8A as applicable. Authorized modifications and special inspections other than those issued via AFEO -6 and -5 series, are to be clearly identified in this form.

10 If a repair is effected by replacement of a part of component which is listed in Appendix "A" of the applicable -7A EO (Maintenance Schedule) such replacement must be transferred to form L14-4, Airframe Component Replacement Record, or in the case of an engine or power plant Component, into sections 8 and 7 of
In addition, all major engine repairs, see sub-para. 33 (j) must be transcribed to section 9 of form L14-7. Similarly, major power plant repairs are to be transcribed to section 8 of form L14-8. The date, of completion Modifications and Special Inspections, entered and completed on this form, must be entered in forms L14-5, -6, -6B, -7, -8, or 8A as applicable. No additional transcription, i.e. repairs and adjustments, replacement of parts or components are listed in the above noted replacement schedule, etc. is required SINCE WHEN CORRECTLY COMPLETED AND FULL. THIS FORM L14-1B IS TO BE FORWARDED TO THE LOG ROOM AND INCLUDED IN THE LOG CYLINDER (L14L).

11 In addition to progressively recording "daily" major defects, this form may be used as a "job sheet" prepared by the maintenance control room to accompany the Maintenance Schedule (EO-7A) during Periodic Inspections, Modifications, Special Inspections, repairs, adjustments, replacements, etc., to be done simultaneously with the inspection, could be listed, and when completed, the form could be inserted into the log binder after necessary transcription (as mentioned in para. 1 above) has taken place. No additional record of such work is required.

12 All transcription from form L14-1B should be carried out by Log room personnel on receipt of this form from servicing or repair organizations.

13 When an aircraft is operating under conditions where a travelling copy of the L14 is in use, column 3 or L14-LB is to be annotated. "Travelling copy of L14 is use". The aircraft is not to be flown without reference to the travelling L14 in use until column 4 of L14-1B has been annotated "Travelling copy of L14 no longer in use, transcription completed."

Placing Aircraft Serviceable.

14 Columns 4 and 5 are to be completed by the technician detailed for the work. The signature "Rectified By" must be that of a technician having four, 3 or 2 qualifications in the applicable trade. The signature "Inspected and Passed" must be that of the NCO ic of the trade

concerned, or of the NCO in general charge, on completion of his inspection of the work detailed under "Rectification" When an aircraft has been placed unserviceable for any reason. Column "Certified Serviceable and Date/Time" must be signed by an A.E. Officer, or an Aircraft Maintenance Superintendent before the aircraft can be considered serviceable. An Aero Engine or Airframe Maintenance Supervisor may be delegated this responsibility by the CTSO or his equivalent where circumstances so dictate, also delegate this responsibility to Technical Officers of Branches other than TECH/A and to Senior NCOs of Trades other than Aero Engine or Airframe, if he considers them to be qualified to assume this responsibility where aircraft are on detached duty away from base the provisions of AFAO 9.00/09 cover the authority granted to qualified crewmen in this regard.

15 The name of the senior technician concerned in each separate rectification is to be entered in the form L14-1B, Change of Serviceability and Rectification Record. In the case of Periodic Inspections L14-1B will be completed as detailed in AFEO 00-50-7, para. 33.

16- Signatures of individuals, (as specified in para 14) in the "certified Serviceable" column, with respect to serviceability of the individual item following rectification, are to be interpreted as certification that the following requirements have been met:

- (a) The signatures in the "Rectified by" and Inspected and "Passed" columns, and passed column, are those of technically qualified personnel.
- (b) That serviceability has been assured, either by personal inspection of the area affected and work done or by any other reference or means, such as percentage or spot checks, considered necessary to obtain such assurance.
- (c) That all applicable form entries are complete.

FORM L14-1C AIRCRAFT DATA SHEET APPENDIX "D"

17 This form provides servicing and operating data for the information of pilots and ground personnel. All data applicable to the aircraft type in operation is to be entered as indicated.

18 Operational Restrictions will list any restrictions on the flying of the aircraft in circumstances when it may be considered serviceable, but due to a lack of a certain modifications, or extra equipment, etc., it is not safe under all flying conditions, E.G. an unmodified canopy might restrict flying above a definite altitude; an unserviceable instrument in the rear cockpit may restrict the aircraft to solo flight. Only restrictions which are of a temporary or local nature should be entered. Information found in the pilot's notes for the particular aircraft should normally not be included.

FORM L14-1X AIRCRAFT EXPLOSIVE CARTRIDGE RECORD APPENDIX "E"

19 The RCAF form L14-1X is introduced to provide a record for all explosive cartridges installed or carried in aircraft. This will include cartridges for ejection seats, the canopy, drouge guns, engine fire-extinguishers, M3 initiators, and signal cartridges.

20 The form L14-1X is to be inserted in the L14S Aircraft Maintenance Record binder after forms L14-1C for ready reference by servicing and maintenance personnel. It also provides the specific information on aircraft explosive cartirdges required for explosive special inspections, sentencing, expiratory dates, and investigations due to crashes, etc.

21 Entries such as the airframe type and registration number are to be placed in the positions allotted at the top of the form. Columns 1 to 9 are to contain the following information.

- (a) Column 1 Type of cartridge.
- (b) Column 2 Remaining life of the cartridges in months.
- (c) Column 3 Positions installed (i.e. front seat, rear seat, right engine, etc.)
- (d) Column 4 Lot number
- (e) Column 5 Date of manufacture.
- (f) Column 6 Manufacturer's initials
- (g) Column 7 Date installed.
- (h) Column 8 Date to be replaced.
- (j) Column 9 Date replaced.

NOTE

Columns 2 and Column 8, "life" and "Date to be Replaced" provide a double check on the expiratory date to ensure that no errors are made on this important aspect. For uniformity, the life remaining in months at the time of installation.

22 Columns which do not apply to certain types of aircraft are to be marked NA (not applicable). When a form has been completed on both sides, a new form is to be inserted with the data on the currently installed explosive charges entered and the old form L14-1X is to be destroyed.

23 The L14-1X is to accompany the Aircraft Maintenance Record L14S binder on transfer of the aircraft to provide the receiving unit with the required information.

FORM L14-1X AIRCRAFT TRANSFER LOG APPENDIX "P"

24 In this form, only one line per transfer is to be used. There will be no entries by supply personnel. The signature, that of the officer responsible for the custody of the Record Set, is a certificate that on receipt and transfer of the aircraft, the Set is complete and all form entries are up to date. No periodic check certification by the CTSO etc. is required.

FORM L14-3 FLYING TIME RECORD APPENDIX "G"

25 This form is the only permanent record of progressive flying time on the aircraft. Since the running times of engines, and the operating time on numerous components and accessories is related to the total flying time as posted in this form, it is essential that the upmost care is taken to maintain this record accurately. Flying times as received in Section 5 or Form L14-1 should be entered at FREQUENT intervals, not less than each Periodic Inspection.

26 When an airframe is completely reconditioned or overhauled, to the extent that it begins a new life after such work, the total time at overhaul must be recorded in this form, specified as the first, second, third, etc. E.G. first airframe overhaul at 1200 hours, second overhaul at 600 hours. The accumulated total of the overhaul times plus the current total, will give the total flying hours since new.

27 A brief separate entry is to be made in the "Remarks" column of this form opposite the relevant flying time and date entry, as appropriate for:

- (a) Any flight in which a forced landing or flying accident occurs.
- (b) FLIGHT TEST: after repairs, replacements, adjustments, modifications likely to affect the safety or flying characteristics of the aircraft.
- (c) Engine changes.
- (d) Periodic inspections
- (e) Action taken regarding maintenance of the engines and airframe during storage.

FORM L14-4 AIRFRAME COMPONENT REPLACEMENT RECORD APPENDIX "H"

28 This form is intended primarily to ensure that components which have been allotted a "life" do not continue in use beyond that period. A list of such items is found in Appendix "A" of the applicable -7A EO. In addition to these items, which are considered components for the purpose of this record, this form would list engines, propellers, etc. Provision is made in forms L14-7 and L14-8A for the recording of engine and power plant components respectively. All other components will be recorded in form L14-4. When form L14-8 is used for the propeller, it will be necessary to transcribe replacement data from form L14-4. When components are installed which have been in use for a number of hours on previous installations, the time entered in column "To be Replaced" must be advanced by an equal number of hours. In order to maintain conformity the time entered in the "life" column is to be the "life" remaining of the component at time of installation. If properly used, this form should consolidate all the information concerning the replacement of parts and components which have an established "life". When an aircraft becomes due for a Periodic Inspection, comparison of the entries in column "To Be Replaced" with the current total flying time on the aircraft should enable Maintenance Control Room to list all such items in the inspection "job sheet" as mentioned in para 11 of this EO. In addition, this form should simplify the recording of partially used by serviceable components, and provide time date for the TFR or UCR action.

NOTE

The introduction of an ADDITIONAL item to Appendix "A" of the applicable -7A EO is not to be registered initially on form L14-4. Registration is to be commenced only when it becomes necessary to replace the item in question. In this respect, units are to ensure that the necessary entries are made at this time and that the Appendix "A" is kept up-to-date and checked frequently.

Time entered in "Installed At" "to be Replaced At", and "Actual Flying Hours on Removal" column are to be total aircraft flying times. Any extensions to lifed components are to be in accordance with EO 00-50-7.

FORM L14-5 AIRFRAME SPECIAL INSPECTION RECORD APPENDIX "J"

FORM L14-5 AIRFRAME FIELD MODIFICATION RECORD APPENDIX "K"

29 These forms provide for the recording in numerical order of all applicable airframe Special Inspections and Field modifications as authorized by AFEOs (-5 and -6A), or other authorized sources. A record Set must include separate forms L14-5 or -6; for AFEO -5 or -6A orders, and SIs and Mods issued by Command HQs or other authorized sources. Entries are to be made as soon as the SI or Mod. authority is received and the date of entry will be the date on which the authority is received. The

date of completion of Special Inspections and Modifications is to be entered on these forms as transcribed from from L14-1B. Those which do not apply to the particular airframe concerned are to be marked "NA" in the columns "Date Carried Out" or "Date Embodied". Where Mods are entered and on inspection of the aircraft are found to be already embodied, the "Date Completed" column is to be annotated "Found Embodied" Similarly if a mod is shown as being completed and on inspection of the aircraft is found not embodied, the date in error shall be ruled out and initialed. When the modification is embodied the data is to be entered above the date that has been ruled out.

30 Occasionally a Special Inspection or Modification is issued on an item of equipment on an aircraft, which has a separate series of SIs and Mods from that of the airframe or engine. If forms L14-8, L14-8A or an "accessory" Log Book are used for such equipment, Mods and SIs are to be entered in such forms. Where no such form or log book is used, they are to be recorded in a separate form L14-5 or -6, appropriately identified as "Miscellaneous Special Inspections" or "Miscellaneous Modifications". If they are sufficient SIs or Mods on an individual item to justify it, a separate sheet may be used specifically for that item; this sheet will be removed from the Record Set whenever such item is permanently removed from the aircraft.

FORM L14-6B MANUFACTURERS AND OVERHAUL MODIFICATION APPENDIX "L"

31 This form, applicable to airframes and engines, is to be used to record AF/O-6B, or authorized Manufacturers' and Overhaul Modifications. On manufacturer or complete overhaul of the airframe or aero-engine, the TSU or RD will ensure that all applicable AFEO-6B orders and other authorized manufactures' or overhaul modifications ARE RECORDED IN NUMERICAL ORDER AND OTHER DATA COMPLETED UNDER APPLICABLE HEADINGS. Following embodiement, EACH ENTRY IS TO BE CERTIFIED by the Contractor's Chief Inspector, RCAF Technical Services Representative, or other specifically delegated person. Signatures are not to be made under the modification but in the appropriate column in line with the mod entry. When manufactures or overhaul modifications are embodied by Mobile Repair Parties (contractor or service) the person in charge of such parties will ensure that the modification is entered and certified in this form in the relevant Aircraft Maintenance Record Set. TSUs are to ensure that a copy of the completed L14-6B form is forwarded to AMCHQ for each overhaul of any reciprocating type machine. When modifications are incorporated on manufacture, they will be entered and annotated "NA" under "Embodied BY" column.

32 Forms L14-6B applicable to installed engines are to be retained adjacent to the relevant forms L14-7 in the Aircraft Maintenance Record Set. They will be removed to accompany forms L14-7 when the latter are removed from the set for any reason.

FORM L14-7 ENGINE MAINTENANCE FOR APPENDIX "M" one section becomes full.

33 Form L14-7 will be replaced as a unit when any one section becomes full, however, it is expected that each form will suffice between engine overhauls and new form will be opened following each overhaul. This form is designed to satisfy both piston and turbine type engines maintenance recording requirements. It will be included with the Aircraft Maintenance Record Set while the engine is installed but will be removed to accompany the engine when the engine is removed for any reason.

Section 1

(a) Overhaul Certificate - to be completed by the applicable Technical Services Detachment or Repair Depot on each new form opened following a complete overhaul of the engine. The first two columns will show the contractor or RD, and the date at which the overhaul was completed. The column "total Hours Since New" records the accumulated total of overhaul times. The signatures in column 4 must be that of an inspector authorized to certify the satisfactory completion of the overhaul. Where required, an official stamp or counter-signature by an authorized inspector representing the RCAF at the contractor's establishment, will be included in this space.

(b) Transfer Log - see para 24; this section is to be completed in addition to form L14-2, Aircraft Transfer Log, on transfer of the airframe complete with engines.

Section 3

(c) Periodic Inspection Record - in certain circumstances particularly with jet aircraft, during a Periodic Inspection, the engine (or power plant) is removed from an airframe and replaced with another pre-inspected engine. The original engine is subsequently given the required inspection and held as a replacement. (Refer also to para 4 of EO-OO-15-10, dated 28 out 55). This record is for use as required, to ensure that accurate information is maintained concerning the inspection status of such engines.

Section 4

(d) Installation and Running Time Record. The running time of an engine is transcribed from the flying time of the airframe as recorded in the L14-3. If an engine with a previous record of running time is installed in an airframe, the previous running time is recorded in the space "Time Since Overhaul on Initial Installation". On removal of the engine from the airframe, the column "Hours This Installation" is to be filled in. This entry will be equivalent to the difference between the Installation aircraft hours and the Removal Aircraft hours of column 3 and 5 respectively. On installation of an engine in an airframe an entry should be made in form L14-4 Airframe Component Replacement Record

indicating the aircraft hours at which another engine overhaul is due. This serves as a double check on replacement. The progressive running time of an engine between overhauls is the sum of the "Hours This Installation" column. TSDs or RDs are to ensure that on complete overhaul of the engine, the total of the Times "Hours This Installation" column is added to column 3, Section 1 of the old L14-7 and entered in column 3, Section 1 of the new form. A brief entry MUST be made under "Reason for Removal", E.G. "Time Expired, For Overhaul" or "Engine Failure" or "On Periodic Inspection", etc.

Section 5

(e) Hot Starts Record - For recording "hot starts" in accordance with existing instructions which require that certain turbine engines be removed after a maximum number of hot starts, within defined limits of temperature.

Section 6

(f) Modifications and Special inspections, to record all Field Modifications and Special Inspections applicable to the particular engine type. Observe the instructions contained in para 29 of this EO which are obviously applicable. On opening a new form L14-7 after overhaul, all Modifications and Special Inspections will be transcribed from the old form, showing dates of completion where applicable. Refer to para. 31 and 32 concerning the handling of form L14-6B as applicable to engines.

Section 7

(g) Inhibiting Record - To record the antricerresive or inhibiting treatment given an engine at any time and for any reason. In particular, the details of such treatment prior to and while in storage, and in preparation for shipment to contractors, etc., must be recorded.

Section 8

(h) Component Replacement Record - For use as described in para 28 for engine components or accessories only I.E. items which have an established "life" and which normally accompany the engine on transfer. The entry in the "Life" column is to be life remaining on the component at the time of installation. Times "Installed At", "To be Replaced" and "Actual Hours on Removal" are actual installed and removal dates. "Date to be Replaced" applies only to components with a Calendar life. Notwithstanding the foregoing, this section may be used for according replacement data on any engine component or accessory if such will assist maintenance in any way. In this case "running hours" are to be the engine time since new or overhaul as applicable.

Section 9

(j) Major Repair and Adjustment Record - During the period through which an engine is installed on a particular aircraft in use, details of repairs and adjustments are available in form L14-1B which is filed in the Aircraft Maintenance Record, Log Set (binder L14L). On removal of the engine for re-installation in another aircraft, or for overhaul, such records remain in this binder and therefore are not available to the new user or contractor, concerned with the engine. It is realized that there is very little, if any information of use to an overhaul contractor with regard to repairs and adjustments carried out on an engine DURING ITS OPERATION BETWEEN NORMAL OVERHUAL TIMES; however if the engine is removed serviceable or requiring relatively minor repairs, and is subsequently installed in another aircraft, there may be a need to refer to certain work done as the engine continues in service between overhauls. This Section (Section 9) is to be used to record any MAJOR repairs, adjustments or replacements of parts, components, accessories which have no established "Life", such as may affect the future operation of the engine; for example, partial overhauls, cylinder replacements, replacement of "hot section" components on turbine engines, etc. If the engine is removed prior to its normal overhaul time due to failure, all available data concerning that failure must be entered in this Section for the Contractor's information.

NOTE

Any extensions to Lifer components are to be in accordance with EO 00-50-7.

FORM L14-8 COMPONENT HISTORY FORM APPENDIX "N"

34 This form is applicable to propellers, power recovery turbine and those helicopter components or assemblies for which a separate record must be maintained. It is not intended for use for other items listed in Appendix "A" (Replacement Schedule) of the -7A EOs; however, Commands and Units may authorize the use of this form when it will satisfy a requirement (local or otherwise) for a maintenance record of certain equipment for which no record sheet or log back is presently provided.

35 On opening the L14-8, all applicable and identifying data will be entered, by the TSD or RD concerned, in the following blocks of the Component History Form; Item, Type, Ref No., Part No, Serial No, Operational Life and Overhaul Life. If the item is new, the remaining blocks, will be marked "NA". The overhaul certificate includes the following blocks; Overhauled By, Date, Hours Since Last Overhaul, Total Hours Since New, Sig. of Auth., Inspector and Rank. The block "Hours Since Last Overhaul" will show the accumulated total time in the "Hours This Installation" column on the Installation and Operating Time Record of the previous L14-8, at the time of overhaul. Modifications and Special Inspections will be entered in the applicable blocks. Instructions contained in sub-para 33(j)

are to be considered when making entries under "Repairs - Adjustments, Replacements". All other column space headings are considered self-explanatory.

36 Form L14-8 will be included in the relevant Aircraft Maintenance Record Set while the item concerned is installed. They will be removed to accompany the item when it is removed for any reason.

FORM L14/8A POWER PLANT SKELETON LOG APPENDIX "O"

37 This form is to be used as a log for all power plants and will provide a record of overhauls carried out; transfer action taken, periodic inspections; installation in and removal from the aircraft; engine installation and removal; modifications and special inspections; component replacement; major repairs and adjustments and manufacturers' and overhaul modifications embodied. Form L14-8A will replace the old Power Plant Log Card, Form E377.

38 Form L14-8A will be replaced as a unit when any one section becomes full, however, it is expected that each form will suffice between power plant overhauls and a new form will be opened following each overhaul.

Section 1

(a) Overhaul Certificate to be completed by the applicable TSD or RD on each new form raised following a complete overhaul. This section is to be completed in accordance with the instructions applicable (sub-para 280 (b) also applies. (re) Sub. para 33(a).

Section 2

(b) Transfer Log - See Paragraph 19; this section is to be completed on dispatch and receipt of the power plant (sub para. 28)b) also applies)

Section 3

(c) Periodic Inspection Record - This section will indicate the inspection status of the power plant at all times so that under circumstances where a power plant is removed because of engine unserviceability necessitating engine replacement, the hours remaining on the newly-serviced power plant are positively established.

Section 4

(d) Installation Record - Records power plant installations and removals together with the record airframe hours and date of each completed operation. The airframe and registration number as well as the position of the particular engine on the aircraft are to be recorded and removal times is to be recorded under "Hours this Installation" when a power plant is removed.

Reasons for removal are to be brief, e.g. "On engine replacement".

Section 5

(e) Engine Installation Record - Records replacement of aero-engines, the serial number of the particular engine, and installation and removal dates. No record of engine running hours is required since this information is already available in the engine log set. Forms L14-7 and L14-8A must accompany the complete power plant at all times, i.e. on removal for repair, in transit, etc. Reason for Removal will be brief and to the point, e.g. "Time expired".

Section 6

(f) Modifications and Special Inspections - the instructions contained in para. 29 for completing the airframe modifications and SI record are also applicable to this section.

Section 7

(g) Component Replacement Record - to be used for components or accessories which have an established life. The instructions contained in para. 29 for completing the airframe modifications and SI record are also applicable to this section.

Section 7

(g) Component Replacement Record - to be used for components or accessories which have an established life. The instructions contained in para 28 for the airframe component replacement record are also applicable for completion of this section. Reasons for removal are to be as brief as possible.

Section 8

Major Repairs and Adjustment Record - to be used to record major repairs and ensuring adjustments only. Although this information is normally available in form L14-1B, removal of the power plant for repairs or overhaul and installation in another aircraft would give the overhaul contractor little or no information with regard to previous repairs carried out unless it was also recorded in the applicable L14-8A.

(j) Manufacturers' and Overhaul Modifications - the Instructions laid down for completion of form L14-6B are applicable here, (see para 31).

INSTRUCTIONS FOR USE GENERAL

39 The L14 Aircraft Maintenance Record is a combined aircraft maintenance form and log set, but in use it is divided into two parts. A convenient number of forms L14-1, several each of forms L14-1A and L14-1B, and one each of forms L14-1C and L14-1X, comprise the "Servicing" part and are retained in binder L14S on the "line" for ready reference by the pilot and servicing personnel.

40 Forms L14-2 to L14-8A inclusive, comprise the aircraft "Log" set which is retained in binder L14L in the maintenance control office, log room or equivalent organization.

41- Each form L14-1 is to be effective between 0001 hrs to 2359 hrs. on the date indicated. Where night flying is in progress over 2359 hrs. the L14-1 may continue in use until cessation of night flying and the sheet annotated accordingly. Each form is to be replaced at the end of this period, and is to be forwarded to Maintenance Control or Log Room where transportation takes place as required. If a Primary Inspection designated as a 72 hr or weekly is authorized the same procedure will be followed and the Validity Block completed as detailed in sub-para 4(c) of this EO. Appropriate entries concerning servicing carried out after the last flight of the day should be entered in the new sheet opened for the best day of flying. The transcription mentioned above should normally consist of flying time (to Form L14-3) and replacement data WHERE REQUIRED.

NOTE

The form is also to be replaced and Validity Block in Section 3 annotated if no flying has taken place on a particular day.

42 Form L14-1 is designed to provide servicing information to the pilot and servicing personnel throughout a day's flying. The only information which needs to be retained as a permanent record is the flying time. Once this time has been brought forward or recorded in Form L14-3, there is no reason to retain the completed form L14-1 other than as the record of the signature certifying the CURRENT Primary Inspection. Therefore, rather than accumulate these sheets, it is recommended that they be destroyed approximately 48 hours after a new sheet has been opened which records the next Primary Inspection.

43 With reference to para 5 of this EO, form L14-1A Minor Defect Record, should be forwarded to the Maintenance Control Room when the aircraft becomes due for a Minor or Major Inspection, so that where possible, all outstanding minor defects may be rectified during the inspection. When one sheet is filled on both sides, and only a few items remain unrectified, such items may be transcribed to a new sheet and the full one destroyed if no longer required.

44 As detailed in paras 10 and 11 of this EO, completed forms L14-1B are to filled in the log binder (114L) as an accumulating record of repairs, adjustments, etc., thus eliminating transcription, see para 58. When forms L14-2, -5, -6 and -6B become full, a new form will be ADDED and the serial numbers in the heading of each sheet will follow consecutively. Accumulated forms L14-3 and L14-4 will be destroyed and a new series opened ONLY after a complete reconditioning or overhaul, e.e. the airframe begins a new "life" see para 26. Items will be entered in form L14-4 as per para. 28.

OPENING, COMPILATION AND CUSTODY

45 An Aircraft Maintenance Record Set is to be assembled for each aircraft in the RCAF immediately on acceptance. The forms comprising the set will be opened, compiled and taken into use as follows:-

- (a) By the unit receiving the aircraft on unit establishment immediately on placing the aircraft into regular service.

L14-1C, IX, -2, -3, -4, -5, -6 and -6B

- (b) By the applicable Technical Service Unit or Repair Depot, for each airframe on manufacture.

L14-7

- (c) By the applicable Technical Services Unit or Repair Depot

- (i) For each aero engine on manufacture.
- (ii) On complete overhaul of the engine.

L14-8

- (d) By the applicable Technical Services Unit or Repair Depot.
 - (i) on manufacture of the item for which this form is required, E.G. propellers.
 - (ii) on complete overhaul of that item.

L14-8A

- (e) By the applicable TSU or RD
 - (i) on manufacture
 - (ii) on complete overhaul
 - (iii) on conversion from one Mark or Series to another.

16 When an aircraft or aero engine is converted from one Mark or Series to another, and a COMPLETE overhaul or reconditioning is NOT done simultaneously, the applicable TSU or RD is to amend the "Type" block to show the new Mark or Series designation. Appropriate entries concerning the conversion are to be made in form L14-1B or Section 9 of form L14-7.

47 Technical Services Units concerned with the acceptance of new aircraft from a manufacturer will assemble forms L14-3 to L14-8A to comprise the Log part of the Aircraft Maintenance Record, and will complete the initial entry in form L14-2 on dispatch as detailed in para. 24 of this EO .

48 The responsible RCAF representative at contractors' establishments must comply with instructions covering log entries and certificates contained in the current issues of Specifications AIR-31-2 and AIR-31-6. In this regard, on final acceptance of a new aircraft, the RCAF representative will enter and sign a brief certificate across the first three lines in form L14-2 to the effect that:-

"Certified that all contractors and Departmental Certificates as required in Spec. AIR 31-6 have been satisfactorily completed and filed."

49 The following Officers are responsible for the custody and compilation of Aircraft Maintenance Record Sets:-

- (a) Flying Units - The OC Repair and Inspection, Squadron Engineering Officer or the Aircraft Maintenance Superintendent, or as otherwise determined by Command when such personnel are not established.
- (b) Repair Depots - The aircraft or Engine Repair Officers as applicable or the MEMO in the case of stored aircraft/ engines.
- (c) Technical Services Units - as determined by the CO.

50 Complete Maintenance Record Sets, or forms L14-7, L14-8 and L14-8A for engines, propellers, etc., and power plants held in storage or undergoing reconditioning, overhaul, conversion or repair at an RD or Contractors are to be kept in an envelope (G78, G69 or equivalent).

51 All entries in the log forms are to be typed or written in ink. BLACK ink only is to be used unless otherwise specified in this EO. Although ink is preferable, an indelible pencil may be used for the servicing forms. The utmost care must be taken that neat and legible entries are made, bearing in mind that some of the forms are retained throughout the life of the airframe. Entries made in error are not to be erased; they are to be crossed out and initialed by the individual making the correction.

TRANSFER AND FORWARDING

52 When any airframe, aero-engine or propeller, etc., is transferred the applicable forms comprising the "log" part of the Aircraft Maintenance Record Set are to be brought up to date, removed from the binder, and together with any associated log book or forms, are to be forwarded with the aircraft (engine, propeller, etc.) in a sealed envelope (G78 or G69 or equivalent) with a covering Form G11. If a transferred aircraft is to be flown to its destination, forms L14-1, -1A, -1B and -1X are to be forwarded to the consignee by registered mail. (The remainder of the maintenance forms and log books may be forwarded with the aircraft.) An aircraft Travelling Log, form L14T, will be opened to cover the ferry flight, see Part 2, para. 3 of this EO.

53 Power Plant Skeleton Log is to be included in the relevant aircraft log set throughout the installation period. If the power plant is removed from an aircraft for any reason (usually for overhaul or storage), the L14-8A will be removed from the log set and in the event of transfer, will be suitably enveloped and dispatched to the consignee with the power plant. Prior to transfer, all necessary entries are to be brought up-to-date and the authorized signature made in Section 2.

54 A list of maintenance forms, leg books, etc., which must accompany an aircraft on transfer, is shown in AFEO 00-15-9.

NOTE

If the 1st Primary Inspection (including replenishment data) prior to the ferry of an aircraft on transfer has been recorded in form L14-1, in lieu of form L14T, Aircraft Travelling Log, consignors are to ensure that such forms L14-1 are forwarded by registered mail to the consignee.

55 Aircraft Maintenance Record Sets forwarded to a higher information for Scrutiny are to be returned as early as possible, but not later than seven days after receipt. If the matter cannot be dealt with within that period, any necessary details are to be extracted and the records returned to the unit concerned.

IMPOUNDING

56 All forms comprising the L14, Aircraft Maintenance Record Set, including other relevant log books, sheets of cards, are to be impounded in accordance with AFAO 21.56/01 immediately on receipt of a report that a flying accident has occurred.

57 The CTSO or his representative is to take into his custody, the Aircraft Maintenance Record Set pertaining to aircraft involved in ground accidents.

58 Immediately following their impounding, the forms are to be placed and retained in the custody of the Pado who is to produce them for any reporting procedure on investigation into the accident. Such forms are to be released at the discretion of the Commanding Officer upon the completion of a local investigation or board. When a Director of Flying Safety (DFS) representative is present, the forms are to be released on the instruction of DFS or his representative.

Disposal

59 When an airframe, aero engine, power plant, or an item of equipment for which form L14-8 is used, is:-

- (a) Written or struck off charge.
- (b) Completely overhauled or reconditioned.
- (c) Converted to an instructional category.

NOTE

The Record Set (or appropriate form L14-7, L14-8A or L14-8) is to be completed by entering details of disposal and the authority. This is to be done immediately following the last entry in form L14-2, Aircraft Transfer Log; in Section 2 of forms L14-7 and L14-8A; or in "Reason for Removal" in form L14-8 as applicable.

- 60 The various forms of the Record Set are to be removed from the binder and held within an envelope by the Unit, Repair Depot or Technical Services Unit/Detachment, whichever has taken the action in para 59. After being held for six months after the date of completion of the action in para 59 the forms are to be submitted to a local Board of Officers for disposal in accordance with AFAO 57.00/3.
- 61 On completion of an investigation into the disappearance of an aircraft which has not been located, all Record Set forms pertaining to the aircraft are to be forwarded to AFHQ.
- 62 In certain instances, Record Set forms are required for investigation purposes by the Chief Inspector of Accidents (CIA) or his representative. Upon completion of this investigation, the forms are to be returned to the Unit, Repair Depot or Technical Services Unit) Detachment concerned.

63 Copies of completed L14-1B sheets are to be retained for a period of six months after "Date Closed".

INSTRUCTIONAL AIRFRAME AND AERO ENGINES

64 Record Sets, or forms L14-7 are not to be kept for instructional airframes or aero engines.

LOSSES

65 If an Aircraft Maintenance Record Set, or individual forms L14-7, L14-8, or L14-8A be lost at any RCAF Unit or Contractor, the CTSO or Co. of the applicable TSU is to authorize the opening of a duplicate set of forms. The circumstances of the loss are to be reported to the CHQ or CPHQ concerned for any action considered necessary.

DUPLICATION

67 All modifications and special inspections listed in EOs on the aircraft, engine or power plant are to be entered in forms L14-5, -6, -6B, in Section 6 of forms L14-7 and -8A, or in form L14-8 as applicable, and every effort is to be made to ascertain which of these "ods and SIs have been embodied or carried out by:

- (a) Scrutiny of relevant forms or other available records.
- (b) Visual examination of the airframe, engine, etc., without resort to extensive dismantling or interference with operational use.
- (c) Reference to CHQs or CPHQs where such information may be available.

68 If dates of embodiment or completion of Mods or SIs are established such dates are to be entered in the applicable forms. Application is to be made to AMCHQ for a list of modifications embodied during construction, reconditioning or complete overhaul for entry in form L14-6B. If the airframe, aero engine, or power plant is transferred, dispatch of both the duplicated Record Set and the equipment in question is to be delayed pending completion of this procedure.

AIRCRAFT TRAVELLING LOG - FORMS L14T AND L14TA

Purpose

1 The form L14T is used to provide a specific form in which all required maintenance data may be recorded during the operation of an aircraft as detailed in para 3 below. It may be necessary for certain units to progressively make minor amendments to forms L14T to provide for recording of maintenance data specifically applicable to their aircraft or function.

INSTRUCTIONS FOR USE

2 Most of the sections in this form have a counterpart in the Aircraft Maintenance Record Set, and their use is fully covered in Part 1 of this EO; therefore, it is not necessary to repeat in detail, the use or application of such sections. Insofar as entries are concerned, the Change of Serviceability and Rectification Log will be used in the same manner as form L14-B Minor Defect Report corresponds with form L14-1A; the Daily Inspection Certificate, fuel certificate oil, coolant, anti-icer fluid and oxygen states, Armanet Loading and Inspection certificate, are covered in Part 1, para 4 of this EO concerning form L14-1. Instructions and cautions which are obviously applicable to form L14T, particularly those dealing with signatures and refuelling and defect recording, are to be strictly observed.

3 Aircraft Travelling Logs are to accompany the Aircraft:-

- (a) On initial acceptance from a contractor and ferry to the assigned unit.
- (b) When ferried between units.
- (c) During periods of detachment from the unit.
- (d) On flights which include landings at a base or bases other than that from which the flight commenced.

4 The cover, form L14TA will be used when an aircraft is committed to international flights, when presentation of the log for official scrutiny is anticipated. However, at the discretion of the CTSO, the L14TA may also be used on domestic flights when the L14T is in use, to provide adequate care and protection from mutilation.

5 When a travelling L14 is used during the periods detailed in para 3 the Change of Serviceability and Rectification Record of the aircraft Maintenance Log Set (L14-1B) is to be annotated "Travelling copy of L14 in use" in "nature of Unserviceability" column. Minor defects, changes of serviceability and flying times are to be transcribed into form L14-1A, L14-1B and L14-3, respectively of the Maintenance Log Set for the aircraft refer to Part 1 para 5 of this EO. The aircraft is not to be flown without reference of the travelling L14 in use until "Rectification."

column of L14-1B has been annotated "Travelling copy of L14 no longer is use, transcription completed". Following such transcription, a heavy black line will be drawn under the last entry in form L14T and an annotation made showing the "date opened" of the forms L14-1B into which the transcription was made. The L14T will then be filed for future re-use. Full forms L14T are to be destroyed after the necessary final transcription has been completed.

6 When an aircraft is continually committed to transport or communications flights, the Command concerned may authorize the continuous use of forms L14T in lieu of form L14-1. In this case, only transcription of flying time, unrectified minor defects and changes of serviceability (repairs, replacements, Mods, Sls, etc.) into the applicable form in the Record Set is required. When full, forms L14T used under these circumstances, will be filed and retained for a minimum period of six months before destruction.

7 Captains of aircraft, during flight specified in para 3, are responsible that the names, ranks and trades of personnel who have assisted in the maintenance, are entered in the "Daily Inspection Certificate" or "Charge of Serviceability and Rectification Log" as applicable.

8 Form L14T is to be impounded as detailed in Part 1, paras 56 to 58 inclusive. When an accident occurs at a considerable distance from the parent unit, the CO of the unit nearest the scene of the accident is responsible that form L14T (together with any other forms pertaining to the maintenance history of the aircraft) be removed and impounded. Such forms are to be forwarded by registered mail to the CO of the parent unit.

USE OF COMPONENT HISTORY FORM FOR ARMAMENT SYSTEMS EQUIPMENT

- 1 When used to record data on the Fire Control System, Armament Systems Shops will be required to raise a form L14-8 on all black boxes, installed in nose packs, aircraft or test installations, and those used as spares.
- 2 A form L14S cover will be raised for each aircraft, (with nose pack attached), spare nose packs, and spare black boxes as indicated in paragraph 4 of this part.
- 3 All FCS boxes installed in an aircraft will have their L14-8 sheets filed in the L14S for that serially numbered aircraft. For Mg-2FCS, the components in the "nose pack" will be filed in the front section of the L14S. A divider sheet will separate the L14-8 sheets of nose components from the L14-8 sheets of the components installed in the fuselage, which will be filed in the back portion of the L14S. This will facilitate the removal of sheets when nose packs are exchanged.
- 4 For spare black boxes an "Armament Systems Shop" L14S cover is to be raised. All black boxes not installed in aircraft or nose packs will have their L14-8 sheets filed in this cover to indicate the location of these boxes somewhere in that Armament Systems Shop, as:
 - (a) Installed in test benches.
 - (b) Spares
 - (c) Under repair
 - (d) Ready for return to the RAO contractor.
- 5 The minimum requirement for information on the L14-8 sheets for the FCS boxes are as follows:
 - (a) Nomenclature
 - (b) Section/reference and type
 - (c) Serial number
 - (d) Modification status.
 - (e) Special Inspections
 - (f) Calibration of the box where applicable.
- 6 The recording of nose exchanges, and calibration data on complete or partial MG-2 FCS systems should be specified in the L14-8 raised for the nose pack. These L14-8 sheets should also include the following.

- (a) Nomenclature (nose pack).
- (b) Serial number of nose pack.
- (c) Date and reason for removal.
- (d) Date of alignment, required as a result of component exchange, or date e.g. (EO 05-25E-6A/142) these are to be recorded, with the date of incorporation.
- (f) Special Inspections.

7 Upon transfer of an aircraft, log control is to be given the applicable L1fS and L14-8 sheets for inclusion in the aircraft L14 records. This will allow the receiving unit or contractor to ascertain the modification status immediately, and to know the latest calibration date, in order to schedule the next calibration, and incorporate any deficient modifications.

8 When spare black boxes are to be returned, reference paragraph 4 (d), the Component History Sheet L14-8 is to be forwarded with the component to the R&O contractor indicating the last fault or reason for returning.

9 On completion of Repair or Overhaul, contractors are to ensure an L14-8 accompanies all FCS Black Boxes leaving their plant.

10 When the installation and repair sections of the component History Form have been completed, a new L14-8 is to be drawn up entering the items listed in paragraph 5 and the latest installation and calibration data. After this information has been transcribed, the old sheets may be destroyed.

11 Log Books (E133M) Armanent Systems Equipment Log will not be required once L14-8 forms are raised.

MODIFICATIONS AND SPECIAL INSPECTIONS

Modificatitos differentiate between modifications which have field application and these which are installed by or with the assistance of RD's or contractors, and to indicate the currency of the modifications, the -6 series EO's are divided into three categories:

-6AV) Vital Modifications
-6BV)

-6A Field Modifications

-6B Contractor Modifications.

NOTE

Normally, modifications are issued as -6A or -6B. Vital modifications, as described in para 4 below, will be issued as -6AV or -6BV depending upon whether they are field or contractor application.

Vital Modifications (-6AV or -6BV Series)

- 2 A "V" modification is introduced as the result of a situation requiring the grounding of the type of aircraft involved, or the introduction of special restrictions either in operations or maintenance pending the embodiment of the modification.
- 3 The authority for the categorization of "V" modifications will rest with AFH/AMTS. The "V" category can be recommended by operating units, commands and other organizations involved.
- 4 Where a "V" modification has been authorized, advance leaflets will be issued containing all available information and the proposed rectification.
- 5 The regular -6AV or -6BV leaflet will supersede the advance leaflet and will be identified with a red striped border.
- 6 Kits for "Vital Modifications" will be issued and processed on an AOG Basis with automatic distribution to operation units and will be identified with a large red "V" on the outside of the packages.
- 7 Units will embody -6AV modifications immediately unless otherwise directed by the leaflet. AMC will arrange embodiment of -6BV modifications by the most expeditious means. Contractors and/or Repair Depots will incorporate all -6AV and -6BV modifications on aircraft which they hold, before release to operating units.

Field Modifications (-6A Series)

- 8 Before 1 Aug 56, leaflets for field modifications were not issued until parts were available and units were responsible for demanding kits or parts.
- 9 1 Aug 56, automatic distribution of modification kits was introduced to ensure fast and equitable distribution of 6A modification kits as they became available, to assist in more rapid embodiment on a progressive basis. Automatic distribution is not retroactive on mods issued prior to 1 Aug 56.
- 10 When "Automatic Distribution" is to be used it will be annotated in para 3 of the applicable AFEO -6A leaflet, the leaflet released, and AMCHQ will commence automatic issue of the modification kits. The rate of issue of modification kits to units will depend on the rate of delivery from the manufacturer and may extend over a period of months but units shall not demand. There will be some instances in which "Automatic Distribution" will not be justified and therefore it is essential that units be guided by the instructions which appear on the modification leaflet. When automatic Distribution is not used the AFEO -6A leaflet will be annotated "Unit Demand" in para 3 and units shall demand their requirements in accordance with present procedures.

11 The incorporation of -6A modifications are mandatory on equipment at contractos, or on 5R equipment, before issue, unless contrary instructions are contained in the modification leaflet, or AMCHQ waives the requirement in each individual case.

Contracto Modifications

12 Leaflets are not issued for contracto modifications under normal circumstances. These modifications are included in the -6B index under an EO number with a cross reference to the originating data. Leaflets will be issued only when no published date exists or when field units require modification detail.

13 Units may request contractor modification details by letter, when the information is considered essential. Full reasons are to be stated so that the issue of a leaflet for all units may be considered.

14 Contractor modifications are to be incorporated in accordance with the following priorities:

"A" ESSENTIAL - must be embodied

"B" IMPORTANT - may be omitted only an AMCHQ authority

"C" ROUTINE - to be embodied as soon as parts are available

"D" DEFERRED - to be embodied when existing parts become unserviceable and stocks are exhausted.

15 Modification EO's will be issued in numerical sequence.

16 Modifications which were issued as AFTEOs prior to the origination of AFTEOs are shown as the first order of each series in the form of a checking list.

17 AFTEOs are to be removed from the AFTEO binder and placed when no longer applicable or cancelled and superseded by AFTEOs.

Log Book Entries

19 The following procedure is to be instituted with regard to the log book entry when a -6A, -6AV or -6BV EO supersedes AFTEO.

(a) The AFTEO entry is to be cancelled by drawing a red line through it and quoting the EO as authority.

(b) The EO is to be entered in its numerical sequence in the L14-6 (or E133, if applicable) and the embodiment date is to be the same as that shown for the superseded AFTEO.

- (c) In the event that the AFEO differs considerably from the former AFTEO, in the amount and type of work to install, etc., the date of fitment is to be the new date on which the work was completed.

20 Contractor modifications are listed in the Certificate of Manufacturer's Modification (114-6B sheets) (or E133, if applicable) by the contractor or the repair depot and the 114-6B sheets are to be placed in the modification action section of the Log book, Contractors or RD's are to use EO numbers for these modifications whenever they are available. Cross reference may be made to the original data by placing its serial number in brackets after the EO number.

SPECIAL INSPECTIONS

- (a) Reason - to inspect one particular item which has been reported by UCR's or has failed in sufficient quantities to warrant a special inspection.
- (b) Promulgation - Special Inspections are issued consecutively numbered as pink leaflets in EOs, eg. EO 05-45B-5/1
- (c) Action - each special inspection leaflet states when and how often inspections are to be made.
- (d) Recording - Special Inspections are entered in L14-1B and transcribed to log book.

REPORTS AND RETURNS

Stats 318 - UCR(Unsatisfactory Condition Report)
Stats 325 - TFR(Technical Failure Report)
Form L53 - TIS(Technical Inspection Report)
Form L54 - UR (Unscheduled Removal TAG)

Unsatisfactory Condition Report (Stats 318)

The Unsatisfactory Condition Report (Stats 318) is used to submit prompt, prompt, adequate information of unsatisfactory conditions to proper authorities so that corrective action can be instituted.

Reasons for Submission of UCRS

- (a) Failure of malfunctioning of an item of RCAF material or technical equipment.
- (b) Unsatisfactory design or manufacture
- (c) Defects due to
- (i) Faulty or unsuitable material
 - (ii) Poor workmanship
 - (iii) Inadequate quality inspection
 - (iv) Unsatisfactory workshop and maintenance processes.

- (d) Discrepancies in EOs or faults in EO distribution system
- (e) Unsuitable, inadequate or excessive scales of issues.
- (f) Results of aero-engine and airframe inspections.

2 UCR's may be raised by service and civilian personnel and must be submitted immediately unsatisfactory condition occurs.

3 Method

- (a) 5 copies are completed.
- (b) Original retained at CTechO's direction
- (c) 4 copies to command HQ
- (d) 1 copy retained by CHQ, 3 copies forwarded to AMCHQ.
showing action taken
- (e) AMC actions and returns 2 copies to CHQ showing action proposed.
- (f) CHQ returns one copy to originator showing action proposed.
NB: UCR can be stopped at any level.

4 Emergency Submission - Where unsatisfactory condition affects airworthiness and in case of forced landings and crashes, AMC is notified immediately by quickest means. Detailed UCR is submitted as follows:

- (a) Each UCR is to cover only one item
- (b) Photographs are to accompany UCR where possible.
- (c) Subject items are to be retained by CTechO for one month unless disposal order is received beforehand.

Technical Failure Return (Stats 325)

1 The TFR covers any failure or unscheduled removal of equipment on aircraft or airforce equipment.

2 Method

- (a) completed semi-monthly 2359 hrs 15th day each month
2359 hrs the last day of month
- (b) 3 copies - one to AMCHQ
one to CHQ
one retained by the unit.
- (c) Each item is numbered and up to 12 can be entered on one sheet.

Unscheduled Removal Tag (L54)

1 Attached to item removed as technical failures or unscheduled removals, prior to returning.

Technical Inspection Report (L53)

1 Used only by Civilian Contractors.

SHOP SAFETY AND FIRE PRECAUTIONS

1 Accidents and fires just don't happen. They can be attributed to neglect, carelessness or ignorance and they result in personal injury, damage to equipment and lost man hours.

2 Safety regulations often seem trifling but remember that they are based on good common sense, and on past accident experience. Therefore, think before you act, and don't let familiarity breed contempt. Safety precautions in detail may be found in EO 00-25.

3 Safety Precautions

- (a) Don't indulge in horseplay and practical jokes.
- (b) When lifting heavy equipment use your legs and not your back.
- (c) Always treat propellers as if "alive".
- (d) Always use protective clothing when handling corrosive fluids such as paint remover.
- (e) Check stands and ladders for security (foot ladder one-quarter of the length from the wall).
- (f) Look where you are going on the tarmac, especially at night.
- (g) Don't handle machines without proper authority.
- (h) Wear goggles at the grindstone.
- (j) Keep floors and stands clean and free of tools.
- (k) Don't fool around with compressed air
- (l) Take special care when jacking aircraft - ballast in place, no personnel on aircraft.
- (m) Do not play with aircraft controls. You may jam someone's fingers.
- (n) Use first aid kits when necessary. Report all injuries to MIR.

4 Fire Precautions

- (a) Put oily rags in metal containers with lid marked "OILY RAGS".
- (b) Hang coveralls in ventilated metal lockers.
- (c) Do not play with aircraft switches.
- (d) Use only vapour-proof extension lights and flashlights and ensure security of plugs in outlets.
- (e) Do not wear steel plates on boots. They cause sparks and also damage aircraft.
- (f) Store paints, oils, dopes in approved lock-up.
- (g) Ground aircraft and keep hangar fire lanes clear.
- (h) Obey the "no smoking" signs
- (j) Know how to turn in fire alarms, and fire hall phone number.

5 Fire Extinguishers

(a) Classes of fires:

- (i) "A" Class - wood, rubbish, paper, etc.
- (ii) "B" Class - combustible liquids eg. gas, oil, paint.
- (iii) "C" Class - electrical equipment.

(b) Fire Extinguishers

- (i) "A" Class Fires: - water - hand pump
- soda acid - invert
- thermen - invert and puncture cartridge.
- (ii) "B" Class Fires - carbon-dioxide - open valve
Foam - invert and puncture cartridge
Thermene - invert and puncture cartridge.
Ansul - dry chemical - pull pin and strike plunger.
- (iii) "C" Class Fire: - Carbon-dioxide - open valve
- Ansul - dry chemical - pull pin and strike plunger.

(c) Fire lanes - to facilitate movement of fire fighting equipment, fire lanes are marked out on hanger floors by painted lines four to six feet from the walls. They must be kept clear at all times.

AIRCRAFT GROUND SERVICING EQUIPMENT

Jib Cranes

1 Consists of V-shaped wheeled base with a vertical member surmounted by a jib. Load is lifted by chains or wire rope and may be held in position by a brake or ratchet on the winch. Safe capacity is clearly on all lifting tackle.

Slings

2 Various shapes and sizes for various purposes. May incorporate chain, wire, rope, steel beans and tubes, hooks etc.

3 Inspection - always inspect any lifting tackle before use. Monthly inspections entered in a log book in accordance with EO 70-25-2.

4 All lifting tackle is to be declared unserviceable and repaired immediately any signs of deterioration are noted, eg. frayed strands, defective splices in ropes or cables, or worn and damaged links in chains.

5 Overloading must be avoided at all times.

6 Suspended objects are not to be left unattended and personnel are not to pass underneath them.

7 Chains are not to be dragged on the floor and are not to be shortened by knotting; neither are they to be dropped from a height.

8 Chains, wires and ropes are to be protected from sharp edges, rubbing and fretting by means of suitable packing. Kinks and knots are to be avoided.

Hydraulic Jacks

9 Jacks are used to raise aircraft for inspection, testing repairs, replacing components, etc.

10 Inspections - always inspect before use. Monthly inspections and repairs must be signed for in the log book.

11 Care and Precautions

- (a) Jacks normally serviced with 34A/150
- (b) Always use the correct adaptor.
- (c) Do not jack higher than is necessary
- (d) Ensure jacks are on firm ground
- (e) If aircraft is on jacks, keep personnel movement in the aircraft to a minimum.
- (f) Do not Jack aircraft outside unless necessary and wind less than 15 mph.
- (g) Use proper trestles to support aircraft.
- (h) Ground aircraft
- (j) Consult the appropriate description and Maintenance Instructions for that particular aircraft.

Stands and Ladders

12 Used to repair, service and inspect aircraft.

- (a) Always check thoroughly before using.
- (b) When using hydraulic platforms always insert safety clips or pins before using.

Tow Bars

13 Every type of aircraft has its particular tow bar so the appropriate Description and Maintenance Instructions should be consulted before towing a strange aircraft. (see bottom of page).

Supporting Devices

14 Different types and styles of trestles are used in the service. There are wing trestles and fuselage trestles. Wing trestles are used to steady and hold the wing on removal, they are adjustable in height. The Mustang A/C uses a fuselage trestle to steady the tail while being jacked up to do a retraction test.

Auxiliary Power Units

15 Auxiliary Power Unit (APU) - a motor driven generator placed in aircraft or in carts for checking aircraft equipment on the ground and in aid of starting the aircraft engines. To conserve the aircraft batteries.

16 Types - 12 volt or 24 volt for Expeditor.

17 Wing Expeditor Aircraft

13A Towing lugs are provided on the inboard side of the main landing gear forks. Do not tow the aircraft by the tail wheel. CAUTION - a crew member must always be in the pilots seat when the aircraft is being towed to ensure that the tail wheel is unlocked, the parking brake is off, and to operate the brakes if required.

17 Care

- (a) Switch off when connecting, disconnecting and when not in use.
- (b) Do not pull on cable.
- (c) Store lads properly
- (d) APUs are to be run out of doors.
- (e) Use proper APU fuel mixture. ($\frac{3}{4}$ pint SAE oil #30 to each gallon gasoline).

18 Use - Sequence of operation

- (a) To Connect to aircraft
 - (i) switch off
 - (ii) shut down APU
 - (iii) remove plug
 - (iv) store cable

19 APUs in Aircraft - these are 24 volt power units and the same care must be taken with them as with the cart type. The crew man starts this APU. The master switch in the aircraft must be in the off position. There are only a few aircraft with APUs installed. Some of these are:- Dakota, North Star, C119.

Compressors and Booster Pumps

20 Types of Compressors

- (a) Stationary
- (b) Portable

21 Construction

- (a) Type - piston two stage
- (b) coiling - finned coils, fly wheel.
- (c) Safety devices- fuard over, moving parts
- (d) storage tank - air set at 150 lbs sq in.

22 Servicing

- (a) check hose lines, clamps and valves for serviceability
- (b) Use #10 SAE oil, fill to overflow
- (c) Use a good grade of engine gas -70-75 octane rating
- (d) drain storage tank condensation weekly.
- (e) Enter any serviceability or repair in the log book and sign.

23 Booster Pumps

- (a) Used with an air compressor
- (b) boosts air pressure in compressor to the ratio of 10-1 and 15-1
- (c) double piston operation

HERMAN NELSON HEATERS

24 This is a portable heater which can be used for any of the following purposes.

- (a) Preheating - engines and all kinds of mechanical equipment
- (b) Space Heating - of temporary buildings, storage sheds, repair shops and buildings under construction
- (c) Spot heating - of materials, workmen, machinery, storage tanks, tools.
- (d) Thawing - frozen areas and machinery, wheels, gears, etc.
- (e) Ventilating and heating of manoles, tunnels, box cars, shop holds, etc.
- (f) Drying and curing of materials, plaster, pain, cement, etc.

Fuel capacity - 16 gallons

Fuel consumption - 4 gallons per hour

Heat output - 190,000 to 250,000 BTU per hour

Engine - 1 cylinder, 1.5 hours power, 4 cycle.

Ducts - two 12" dia. x 24' long, water proof, flame and heat resisting, collapsible, canvas. Optional - six 6" dia. x 14' long ducts, which can be connected to the ends of the 12" ducts.

Safety Controls. - fuel metering valve control
- safety trip valve
- overheat safety valve.

DON'T permit inflammable materials to come near contact with the exhaust stack. The exhaust stack gases are above 1000 degrees.

DON'T operate this heater without proper instruction

DON'T restrict airflow through air ducts; through kinking

DON'T refuel the heater while it is running

DON'T attempt to relight heater while it is hot

DON'T forget, before lighting heater, CHECK spark arrester

DON'T have your face too close to burner access opening during lighting and operation of burner.

DON'T allow exhaust gases to flow into inclosed space where men are working.

EXERCISE UTMOST CARE WHILE USING THIS HEATING UNIT

AIRCRAFT SERVICING AND GROUND HANDLING

Line Servicing and Starting

1 Always park aircraft in the allotted areas and leave sufficient clearance between wing tips.

2 Before Starting Aircraft

- (a) Checks placed in front of main wheels
- (b) brakes are to be on
- (c) pilot head cover removed
- (d) all control locks removed
- (e) All entrance door closed
- (f) All loose equipment in aircraft tied down
- (g) Fire extinguisher on hand
- (h) APU started

3 Hydraulic Lock - on Expeditor

- (a) ensure switches are off
- (b) props pulled through at least 3 revolutions

4 Starting Procedure

- (a) one man on APU to operate switches
- (b) one man with fire extinguisher in the vicinity of engine to be started
- (c) one man giving and relaying signals to pilot

5 Precautions

- (a) in the event of a fire, engine to be stopped and fire put out.
- (b) keep clear of propeller zones
- (c) be sure of your footing.

Taxi Signals

6 Taxi Signals are standard.

7 Signalman's position in front of port wing tip in full view of the pilot at all times.

8 Signals

- (a) "park here" - arms straight up
- (b) "slow down" - arms up, palms forward, patting motion
- (c) "come ahead" - arms up, forward motion
- (d) "turn left" - right arm pointing to the left brake

-left arm up with a forward motion

- (e) "turn Right" - left arm pointing to the right brake
- right arm up with a forward motion
- (f) "step" - arms up, palms out
- (g) "brakes on" - arms up, clench fist
- (h) "cut engines" - cutting threat action
- (j) "insert checks" - inward sweep
- (k) "start engines" - point to engine, opposite hand circular motion
- (l) "check away" - outward sweep
- (m) "all clear" - hand up, opposite hand point to ground
- (n) "close flaps" - inward sweep of hands
- (o) "open flaps" - outward sweep of hands

9 Night signals are the same as day signals, but using wands or flashlights. Crossed wands indicate "STOP".

10 Responsibilities - pilot is responsible for safety of aircraft. Signalman is responsible for giving correct signals.

11 Precautions

- (a) Keep clear of propellers
- (b) Stand still if possible
- (c) Don't let aircraft direct you
- (d) Keep aircraft moving slowly
- (e) Keep hands high
- (f) Keep yourself in pilot's view.
- (g) Don't panic. Stop aircraft if necessary
- (h) Don't walk or run backwards.
- (j) Don't flash lights towards pilot.

Care and Operation of Shop Mules and Tractors

12 Types of tractors used in RCAF

- (a) land crab
- (b) Latil
- (c) David Brown
- (d) Shop Mules
- (e) D4
- (f) Cleatrac

13 All types of tractors

- (a) to be inspected daily and entered in log ME5
- (b) a record of running hours kept
- (c) returned to ME for periodic checks etc.
- (d) all service drivers of service vehicles to have VME-6.

Aircraft Handling and Towing

14 Moving aircraft by manpower

- (a) clear path
- (b) check aircraft brakes pressure and brake operation
- (c) unlock tail wheel
- (d) Man on brakes, men watching wing-tips
- (e) Sufficient men to move aircraft
- (f) Push on strong parts only. (Tail first is better in this respect).
- (g) NCO or senior man gives commands except that anyone may give "MERCURY STOP".
- (h) Tail steering arm should be used if available.

15 Towing Aircraft by Tractor Expeditor aircraft

- (a) Clear path
- (b) Check aircraft brake pressure and brake operation
- (c) Unlock tail wheel
- (d) Man on brakes, men watching wing-tips and tail
- (e) Correct two bar or bridle and tail steering arm

16 Precautions

- (a) speed - walking pace
- (b) No riders on tractor or two bar
- (c) 5 feet minimum radius on inside wheel on turns
- (d) senior man or NCO gives commands (except that anyone may give "Emergency STOP")

17 Commands

- (a) come ahead
- (b) go astern
- (c) tail to starboard
- (d) tail to port
- (e) brakes on
- (f) stop
- (g) emergency stop

Aircraft Picketing - Expeditor

18 The aircraft must be picketed when it is parked in the open for any length of time. The following detailed procedure should be followed:

- (a) space aircraft to permit changing its heading in the least possible time.

- (b) Locate aircraft with main landing gear wheels and tail wheel on level ground and lock tail wheel.
- (c) Lock control surfaces in neutral position. External surface control locks, if available should be used.
- (d) Lock parking brakes and place wheel chocks at front and back of each main wheel.
- (e) Attach picketing reels to the wing picketing lugs. If picketing reels are not available use $\frac{1}{4}$ inch wire cable or equivalent.
- (f) Pass a line around the tail wheel fork and secure.

Note: When high winds are expected, additional picketing lines should be attached to the main landing gear towing lugs. The picketing stakes and lines in the picketing kit can be used to secure the aircraft when no permanent pickets are available and only normal winds are expected.

Aircraft Refueling

20 The tender is driven and maintained by the ME Section. Servicing personnel handle the hose and fill the aircraft tanks.

21 aircraft refueled as soon as possible

- (a) To prevent condensation in tanks
- (b) To obviate risk of explosion of fuel/air mixture in tanks
- (c) For readiness

22 Before refueling

- (a) At least 100 ft from hangers, buildings, naked flames.
- (b) At least 100 ft from heavy radar equipment
- (c) Aircraft switches off
- (d) Work on aircraft to cease and nobody to be in the aircraft
- (e) Engines cool enough that exhaust may be touched with bare hands.
- (f) Tender as far away from aircraft as possible
- (g) Use care in handling hoses and avoid damage to de-icer boots and mainplanes.
- (h) Grounding - tender to ground
- aircraft to ground
- tender to aircraft
- nozzle to aircraft
- refueling personnel to aircraft
- (j) Man standing by with extinguisher.

Filler cap may now be removed.

23 During refueling

- (a) Tender driver stands by truck
- (b) Pump speed 700 rpm, pump pressure 10 psi
- (c) No personnel in aircraft
- (d) DO NOT BREATHE GASOLINE FUMES
- (e) Leave space in tanks, for thermal expansion of fuel.

24 After refueling

- (a) Fuel tender issue record sheet entry to be made
- (b) E14 entry to be made
- (c) Replace filler caps securely
- (d) If fuel is spilled, move aircraft
- (e) Check yourself for contact with gas and wash if necessary
- (f) Stay away from naked flame if sprayed with gasoline.

Fuel System - Expeditor Aircraft

25 Type of fuel 80/87

26 Fuel tanks- the fuel capacity is 238 imperial (286 US) gallons. Fuel is carried in two main tanks and two auxiliary tanks on each side of the fuselage, and one auxiliary nose tank located in the nose baggage compartment. Filler caps for the center section fuel tanks are located in the upper surface of the wing center section. The filler cap for the nose tank is reached through a quick release access cover located on the right side of the fuselage nose section. The filler cap for the nose tank is reached through a quick release access cover located on the right side of the fuselage nose section. The center section fuel tank sump drains are serviced through access doors located on the underside of the wing center section just outboard of the fuselage. The nose tank sump drain is serviced through an access door located on the underside of the nose section. A small quantity of fuel should be drained from each sump before and after servicing.

Oil Tanks

27 The oil tanks are located in the upper section of the nacelles just aft of the firewall. The filler caps are reached through access doors on the upper inboard side of the engine nacelle. The capacity of each tank is 6.7 Imperial (8 US) gallons. The tanks should be filled to the full mark on the oil quantity dip stick attached to the oil tank

cap. The tanks are drained through a Y-drain valve located on the fire-wall in the wheel well. If engine oil is spilled on the tires it should be removed immediately to prevent deterioration of the rubber.

UNIT TO BE SERVICED	QUANTITY		TYPES OF MATERIAL TO BE USED
	IMPERIAL (GAL)	US (GAL.)	
Front Main Fuel Tank	63	76	Gasoline 80/87 Oct Spec 3-GP-25C
Rear Auxiliary Tank	21	25	Gasoline 80/87 Oct. Spec 3-GP-25C
Nose Tank	67	80	Gasoline 80/87 Oct. Spec 3-GP-25C
Left	6.6	8	Engine Oil
Oil Tank Right	6.6	8	Spec 3-GP-2CA
Brake Fluid Reservoir	Fill up to 2" from top		Engine Oil Spec 3-GP-100A
Anti-ice Fluid Tank	2.5	3	Anti Icer Fluid Spec 3-GP-525

Brake Fluid Reservoir

28 The fluid level should be maintained about 2 inches from the top of the filler neck with hydraulic fluid, 34A/100 specification 3-GP-26A.

anti-icer

29 The tank should be checked and filled before each flight during winter operations and before all other flights on which propeller icing might be encountered.

Aircraft Cleaning

30 Reasons for cleaning aircraft

- (a) Reduces fire hazards
- (b) Reduces corrosion
- (c) Simplifies maintenance
- (d) Reduces wear and drag
- (e) Personnel safety
- (f) Better cooling of engines
- (g) Better vision for pilot

31 When cleaning is carried out

- (a) Before each periodic inspection
- (b) Whenever cleaning is required (oil leaks and mud after landings)
- (c) During bad weather when there is no flying.

32

Cleaning materials and methods

- (a) Aircraft soap 33C/257 - has ammonia adour, amber colored. Used for washing external surfaces of aircraft - "metal", "doped fabric", rubber paint" and "varnished surfaces".
- (b) Mixture - one cup of liquid soap to two gallons of warm water.
- (c) Application - soap solution is applied with long handled soft brushes to all surface areas - soap solution and dirt is rinsed off with fresh water.
- (d) Cautions - don't inhale fumes, protect electrical switches and instruments. Protect your eyes, wash hands after using aircraft soap. Don't let soap dry on aircraft. Limit on fabric surfaces is from 5 to 10 minutes.

33

Cleaning methods and materials

- (a) Varsel 34A-182
- (b) application - varsel can be applied by hand using a cloth after application the surface can be wiped dry with clean cloth. Varsel is most commonly used with compressed air and spray gun to clean down, hard to get at parts of the aircraft- engine and undercarriage.
- (c) Caution-varsol is inflammable and is to be kept in safe areas. i.e. oil stores.

Lubrication of Expeditor Aircraft

34 Parts requiring the most frequent lubrication are landing gear, landing gear retract mechanism, flap mechanism. Many of the moving parts on the aircraft require dry lubrication, and special care must be taken to keep these parts from becoming dirty, cleanliness is essential throughout the lubrication procedure. First the grease fittings or parts must be wiped clean to make sure that no dirt is carried into the part when lubrication is supplied. Lubricant should always be applied sparingly but with the assurance that the bearing surfaces are adequately covered. Excess lubricant must be wiped off to prevent accumulation of dirt and dust. The lubrication periods and correct lubricants for the aircraft are whown in the lubricant chart.

