

A

EO 00-45-1

ROYAL CANADIAN AIR FORCE



MAINTENANCE ORGANIZATION
TELECOMMUNICATION

"REVISION"
NOTICE

**LATEST REVISED PAGES
SUPERSEDE THE SAME
PAGES OF PREVIOUS DATE**

Insert revised pages into basic
publication. Destroy superseded pages.

ISSUED ON AUTHORITY OF THE CHIEF OF THE AIR STAFF

26 JUN 57

Revised 22 Oct 57

LIST OF RCAF REVISIONS

DATE	PAGE NO	DATE	PAGE NO
22 Oct 57	1		

TABLE OF CONTENTS

TITLE	PAGE
PURPOSE	1
DEFINITIONS	1
OUTLINE OF TELECOMMUNICATION MAINTENANCE ORGANIZATION	2
MAINTENANCE PROCEDURES	3

MAINTENANCE ORGANIZATION TELECOMMUNICATION

PURPOSE

1 This EO establishes the definitions and descriptions of terms applied to telecommunication maintenance and the division of responsibility between formations of the RCAF.

DEFINITIONS

TELECOMMUNICATION

2 All activities pertaining to any transmission, emission or reception of signs, signals, writing, images and sounds or intelligence of any nature by wire, radio, visual, or other electromagnetic means, excluding direct control system (i. e., other than by a human link). (AFRO 413/50)

MAINTENANCE

3 The work performed to maintain an equipment in proper operating condition. The term includes corrective maintenance, preventive maintenance, periodic and special inspections, modifications, fitting and relocating equipments, removal, reclamation, repair, replacement and restoration of equipments.

PREVENTIVE MAINTENANCE

4 Measures taken to prevent failure and the necessity for frequent repair, and measures taken to prolong the service life of an equipment such as provisioning against corrosion and frigid or tropical conditions. The term includes the following specific activities:-

OPERATING INSPECTION

(a) (May be designated as "Between-Flight Inspection" or "Primary Inspection" for airborne materiel.) A visual inspection and a performance check of an equipment to determine its overall serviceability and to detect abnormal conditions, errors in adjustment, mechanical breaks, etc. An operating inspection is designed to detect only such slight wear or deterioration as may be apparent on a superficial examination (i. e., by meter readings). No panels, sub-assemblies, etc., are to be removed during such an inspection.

PERIODIC INSPECTION

(b) Preventive maintenance activities carried out at intervals in accordance with schedules contained in applicable EO and, usually, requiring removal of panels, sub-assemblies, etc. This inspection is designed to detect slight wear, maladjustments, early stages of deterioration of components, etc. Periodic inspections may also be designated as:-

(1) Minor Inspections (Airborne Equipment) - Frequency is dictated by the scheduled inspections of the aircraft with due regard to the deterioration caused by removing plugs, panels, sub-assemblies, etc.

(2) Major Inspection - One which demands specialized or complex test equipment and/or highly qualified personnel. Equipment is removed from the aircraft to appropriate workshop.

CORRECTIVE MAINTENANCE

5 Measures required to restore a defective equipment to a serviceable condition. This consists of:-

FAULT FINDING

(a) Isolation or location of a cause of failure, maladjustment, etc.

REPAIR

(b) Correction of a cause of failure or maladjustment. At the level of first line maintenance, this may consist of replacement of a unit or assembly (i. e., an airborne receiver). At second or third line levels, within the limits prescribed in paragraph 11, corrective maintenance includes measures necessary to eliminate and correct the original cause of failure.

MODIFICATION

6 Changes or alterations designed to correct defects and to increase efficiency, serviceability or safety.

ELECTRONIC INSTALLATION (Noun)

7 Anelectronic installation is as follows:-

(a) A combination of electronic units, electronic assemblies and certain separate electronic components and parts which are required to provide one or more complete facilities.

(b) An electronic installation is capable of providing the complete facility or facilities by itself, deriving its prime power from one or more sources and delivering power to the required load.

EXAMPLES

SCR 522 complete, AN/GRT-3 complete, AN/APN-4 complete, etc.

FITTING

8 The physical act of fitting, mounting, or adjusting telecommunication materiel for operational use. This term is defined to eliminate conflict with the noun "installation". It should be noted that an aircraft may be fitted for a certain equipment although the equipment itself has not been installed. That is, the aircraft may be fitted with the cables, junction boxes, mounting brackets, etc., necessary to receive and interconnect the equipment. For further definitions refer to CAP 476.

OUTLINE OF TELECOMMUNICATION MAINTENANCE ORGANIZATION

9 The current maintenance policy aims at the achievement of as much field maintenance as possible, at unit level; with repair depots and repair contractors serving as a maintenance resource, adaptable to the fluctuating unit capacity, which unavoidably alters with changes of personnel, establishments, commitments and supply situations. The maintenance levels, therefore, outlined in paragraph 11 should not be construed by telecommunications maintenance administrators as rigid limitations on the unit capacity.

ORGANIZATIONAL LEVELS

10 Organizational levels define categories in which various formations are grouped for telecommunication maintenance purposes.

Organizational Level

Formations

UNIT

Squadrons
Detachments
Units
Establishments

CENTRAL

Selected Squadrons
Selected Detachments
Selected Units
Selected Establishments
Central Workshops
Station Workshops

DEPOT

Air Materiel Base
Repair Depots
Civilian Contractors

MAINTENANCE LEVELS

11 Maintenance levels define the degree of complexity of maintenance operations undertaken by a given formation, taking into consideration the nature and extent of the test equipment and tools established for the formation.

Maintenance Level

Typical Maintenance Operations

First Line

Visual inspection;
Operating inspection;
Replacement of assemblies and sub-assemblies.

Second Line

Bench checking;
Limited alignment and calibration;
Finding faults and replacing faulty components within the capabilities of the unit;
Field modifications.

Maintenance Level	Typical Maintenance Operations
Third Line	Correct maintenance beyond second line capabilities; Complete alignment and calibration; Reclamation; Depot or contractor modifications.

MAINTENANCE PROCEDURES

12 The following outline indicates the general nature of the procedures to be carried out at each level of the maintenance organization, but does not constitute a "check list" of all required procedures. For details on maintenance procedures refer to EO 35-1-47 and see the applicable RCAF EO or Interim Publication.

FIRST LINE MAINTENANCE

(a) Examples of first line maintenance are as follows:-

- (1) Clean dust and dirt from all external and internal surfaces where such cleaning will not require disassembly or disturb the alignment, calibration or adjustment.
- (2) Inspect the mounts and supports for proper position and security.
- (3) Inspect cables, safety wiring, etc., for safety and security.
- (4) Carry out visual checks of equipment for proper operating conditions, including power supplies and signal and protective circuits.
- (5) Preventive maintenance operations such as lubrication adjustments and performance checks.
- (6) Limited corrective maintenance such as replacement of fuses, signal lamps, etc.

SECOND LINE MAINTENANCE

(b) Examples of second line maintenance are as follows:-

- (1) Complete preventive maintenance.
- (2) Perform specified procedures on circuits where required for preventive maintenance.
- (3) Repair faults found on performance checks and inspections, or report to third line repair facilities if beyond scope of organization.
- (4) Maintain records of equipment operation failures and of corrective action taken, as required or directed by EO 35-1-47.
- (5) Carry out circuit modifications and equipment changes as directed.
- (6) When required or directed, install or remove equipments, cabling, wiring, and major components.
- (7) Fabricate, as directed, for maintenance, modification, or fitting all parts such as supports, brackets, braces, cable forms and major components.
- (8) Carry out calibration, re-alignment, or assembly where such can be done by the use of tools authorized for this class of maintenance.

THIRD LINE MAINTENANCE

(c) Examples of third line maintenance are as follows:-

- (1) Repair or replace equipment as required, or when directed.
- (2) Modify equipment as directed.
- (3) Check for and correct maladjustments causing, or likely to cause, trouble or service interruptions.

- (4) Carry out major repairs and overhaul as required.
- (5) Carry out fitting, relocation, removal or modification of materiel when directed.
- (6) Carry out complete climatic deterioration-proofing and winterization as directed.
- (7) Carry out complete calibration and alignment as required.
- (8) Perform by means of depot teams or repair parties, any work beyond the scope of second line maintenance activities necessary to maintain equipment in satisfactory operating condition, including repair or modification of outside plant equipment such as antenna systems.
- (9) Submission of data concerning prototypes and special projects, etc., as required.

13 Examples of Telecommunication Maintenance Organization are as follows: -

- (a) A squadron operating independently from a small base is considered, organizationally, as a unit but would be equipped and authorized to perform first and second line maintenance. The same squadron, if operating from a major base in conjunction with other activities, would be limited to first line maintenance. Its second line maintenance would be carried out by central workshop personnel.
- (b) A mobile radar unit will almost invariably be equipped and authorized to perform first and second line maintenance.
- (c) The central workshops of a large and complex activity may be equipped and authorized to perform first, second, and third line maintenance in general, or for specified equipments.
- (d) A Command transmitting site will normally be equipped and authorized to perform first and second line maintenance.