



GHANA  
CIVIL AVIATION AUTHORITY

## ADVISORY CIRCULAR AC-AD-033

### **GUIDELINES FOR THE PREPARATION AND MAINTENANCE OF AN AERODROME MANUAL**

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#### **GENERAL**

Ghana Civil Aviation Authority (GCAA) Advisory Circulars from Aerodrome Safety and Standards (ASAS) contain information about standards, practices and procedures that the Authority has found to be an Acceptable Means of Compliance (AMC) with the associated Regulations.

An AMC is not intended to be the only means of compliance with a regulation, and consideration will be given to other methods of compliance that may be presented to the Authority.

#### **PURPOSE**

This Advisory Circular provides methods, acceptable to the Authority, for showing compliance with Part 24 of the Ghana Civil Aviation (Aerodrome) Regulations, 2011, L.I. 2004, as well as explanatory and interpretative material to assist in showing compliance.

#### **REFERENCE**

The Advisory Circular relates specifically to the Aerodrome GCARs and Manual of Standards (MOS).


#### **STATUS OF THIS AC**

This is the first AC to be issued on this subject.

#### **FORWARD**

This Advisory Circular provides details of the contents to be incorporated into the Aerodrome Manual and provide guidelines to be followed by the Aerodrome Operator while preparing the Aerodrome Manual and maintenance.

**APPROVAL**

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## **1. INTRODUCTION**

The preparation of the Aerodrome Manual shall be in the form as specified under Part 24 of the Ghana Civil Aviation (Aerodrome) Regulations, 2011, L.I. 2004. The Manual should be comprehensive; it shall contain detailed operations policies, procedures of the Aerodrome Operator, stipulations of the mandatory requirement contained in Civil Aviation Requirements and other instructions issued by GCAA from time to time. Notwithstanding the guidelines of this circular, the Aerodrome Operator may include in the Aerodrome Manual additional procedures to be adopted by them to enhance surveillance and safety of operations.

## **2. SCOPE OF THE AERODROME MANUAL**

- A. The information presented in the Aerodrome Manual shall demonstrate that the aerodrome conforms to the laid down standards and practices and that there are no apparent shortcomings, which would adversely affect the safety of aircraft operations.
- B. The manual is a reference document and provides a checklist of aerodrome certification standards to be maintained and the level of airside services at the aerodrome.
- C. It shall contain all the pertinent information concerning the aerodrome site, facilities, services, and equipment, operating procedures, organization and management including the safety management system.
- D. Information provided in the Aerodrome Manual will enable the GCAA to assess the suitability of the aerodrome for the aircraft operations proposed and to judge an applicant's fitness to hold an Aerodrome Certificate.

## **3. PREPARATION OF AERODROME MANUAL**

- A. Every owner or operator responsible for operation of a civil aerodrome shall prepare an Aerodrome Manual in respect of such aerodrome and submit 2 copies of the Aerodrome Manual along with the application for issue of aerodrome certificate.
- B. An Aerodrome Manual shall:
  - 1. be typewritten or printed;
  - 2. be signed by the Airport Director or person in charge for day to day operation of aerodrome;
  - 3. be in a form that is easy to revise;
  - 4. have the statement of acceptance or approval of Authority.

## **4. PARTICULARS TO BE INCLUDED IN AN AERODROME MANUAL**

The Aerodrome Manual shall include at least the following elements:

### **4.1. INTRODUCTION**

- a. Front Title page containing Aerodrome name, address and month & year of issue;
- b. Preface shall include the objective, policy and commitment of Aerodrome Operator and shall be signed by the Airport Director or person in charge for day to-day operation of aerodrome;
- c. Record of Amendments;
- d. Table of Contents;
- e. Distribution List of the Manual;
- f. Procedures for amendment to the Manual;
- g. Glossary of Terms.

### **4.2. PART 1 – GENERAL**

- i. General information, including the following:
- ii. Purpose and scope of the manual;
- iii. Legal requirements for all aerodrome certificates and the manual as prescribed in the national regulations;
- iv. Conditions for use of the aerodrome - a statement to indicate that the category under which the aerodrome shall be used i.e. Public use or Private
- v. The system of aeronautical information available and the procedure for their promulgation;
- vi. The system for recording aircraft movement; and
- vii. Obligations of the Aerodrome Operator.

### **4.3. PART 2 - PARTICULARS OF THE AERODROME SITE**

General information including the following:

- i. Plan of the aerodrome showing the main aerodrome facilities for the operation of the aerodrome including, the location of each wind direction indicator;
- ii. Plan of the aerodrome showing the aerodrome boundaries;
- iii. Plan showing the distance of the aerodrome from the nearest city, town or other populous area, and the location of any aerodrome facilities and equipment outside the boundaries of the aerodrome; and
- iv. Particulars of the title of the aerodrome site or if the boundaries of the aerodrome are not defined in the documents of the title particulars of title of, or interest in, the property on which the aerodrome is located and a plan showing the boundaries and position of the aerodrome.

### **4.4. PART 3 - PARTICULARS OF THE AERODROME REQUIRED TO BE REPORTED TO AERONAUTICAL INFORMATION SERVICE (AIS)**

#### **A. General Information**

- i. The name of the aerodrome;
- ii. The location of the aerodrome;
- iii. the geographical co-ordinates of the Aerodrome Reference Point determined in terms of World Geodetic System - 1984 (WGS - 84) reference datum;
- iv. Aerodrome elevation and geoid undulation;
- v. the elevation of each threshold and geoid undulation, the elevation of the runway end and any significant high and low points along the runway, and the highest elevation of the touchdown zone of a precision approach runway;
- vi. Aerodrome reference temperature;
- vii. details of the aerodrome beacon; and
- viii. name of the aerodrome operator and the address and telephone numbers at which the aerodrome operator may be contacted at all times.
- ix. List of exemptions granted in respect of aerodrome facilities detailing exemption number, detail of facility /procedure & the period of validity.

*Note:- The exemption number for a facility shall be indicated against the facility in the following paragraph.*

## **B. Aerodrome Dimensions and Related Information**

Information, including the following:

- i. Runway - true bearing, designation number, length, width, displaced threshold location, slope, surface type, type of runway, and for a precision approach runway, the existence of an obstacle free zone;
- ii. Length, width & surface type of strip, runway end safety areas, stop ways;
- iii. Length, width and surface type of taxiways;
- iv. Apron surface type and aircraft stands;
- v. Clearway length and ground profile;
- vi. Visual aids for approach procedures viz. Approach lighting type and visual approach slope indicator system (PAPI/APAPI and T-VASIS/AT- VASIS); marking and lighting of runways, taxiways, and aprons; other visual guidance and control aids on taxiways (including runway holding positions, intermediate holding positions and stop bars) and aprons, location and type of visual docking guidance system; availability of standby power of lighting;
- vii. Location and radio frequency of VOR aerodrome check point;
- viii. Location and designation of standard taxi - routes;
- ix. The geographical coordinates of each threshold;
- x. The geographical coordinates of appropriate taxiway center line points;
- xi. The geographical coordinates of each aircraft stand;
- xii. The geographical coordinates and the top elevation of significant obstacles in the approach and take-off areas, in the circling area and in the vicinity of the aerodrome. (This information may best be shown in the form of charts such as those required for the preparation of Aeronautical Information Publications as specified in Civil Aviation Regulations);
- xiii. Pavement surface type and bearing strength using Aircraft Classification Number - Pavement Classification Number (ACN- PCN) method;
- xiv. One or more pre-flight altimeter check locations established on an apron and their elevation;

- xv. Declared distances; take-off run available (TORA); take-off distance available (TODA); accelerate-stop distance available (ASDA); landing distance available (LDA);
- xvi. Disabled aircraft removal plan: the telephone/telex/facsimile numbers; e-mail address of the aerodrome coordinator for the removal of an aircraft disabled on or adjacent to the movement area; information on the capability to remove a disabled aircraft - expressed in terms of the aircraft which the aerodrome is equipped to remove; and
- xvii. Rescue and fire fighting: level of protection provided, expressed terms of the category of the rescue and fire fighting services which should be in accordance with the longest aeroplane normally using the aerodrome and the type and amounts of extinguishing agents normally available at the aerodrome.

*Note. - Accuracy of the information in Part 3 is critical to aircraft safety. Information requiring engineering survey and assessment should be gathered or verified by qualified technical persons.*

#### **C. Part 4 - Particulars of the Aerodrome Operating Procedures and Safety Measures Aerodrome Reporting**

Particulars of the Procedures for reporting any changes to the aerodrome information set out in AIP and procedures for requesting the issue of NOTAMS, including the following;

- i. Arrangements for reporting any changes to the GCAA, and recording the reporting of changes, during and outside the normal hours of aerodrome operations;
- ii. Names and roles of persons responsible for notifying their telephone number during and outside the normal hours of aerodrome operations and the location and telephone numbers, as provided by the GCAA, of the place at which changes are to be reported to the GCAA.

#### **D. Access to Aerodrome Movement Area**

Particulars of the procedure developed and to be followed in coordination with the agency responsible to prevent unlawful interference in civil aviation at the aerodrome, for prevention



unauthorized entry of persons, vehicles, equipment, animals or other things, into the movement area including the following:

- i. the role of Aerodrome Operator, aircraft operator, aerodrome fixed-base operators, aerodrome security entity, the GCAA and other government departments, as applicable; and
- ii. the names and role of the personnel responsible for controlling access to the aerodrome and the telephone number for contacting those personnel during and after working hours.

#### **E. Aerodrome Emergency Plan**

Particulars of the aerodrome emergency plan, including the following:

- i. plans for dealing with emergencies occurring at the aerodrome or in its vicinity, including malfunction of aircraft in flight, structural fires, sabotage including bomb threat (aircraft or structure), unlawful seizure of aircraft and incidents on the airport covering "during the emergency" and "after the emergency" considerations;
- ii. details of tests for aerodrome facilities and equipment to be used in emergencies, including the frequency of these tests;
- iii. details of exercises to test emergency plans, including the frequency of those exercises;
- iv. arrangements for reviewing the frequency of those exercises;
- v. list of organizations, agencies and persons of authority both on- and off airport for site roles; their telephone numbers, fax and e-mail address directory, SITA code directory and radio frequencies of offices;
- vi. establishment of an aerodrome emergency committee preparations for dealing with emergencies; and
- vii. appointment of an on-scene commander of an overall emergency operation.

#### **F. Rescue and Fire Fighting**

Particulars of the facilities, equipment, personnel and procedures for meeting the rescue and fire fighting requirements, including the names and roles of the persons responsible for dealing with the rescue and fire fighting services at the aerodrome.

*Note. - This subject should also be covered in appropriate detail in the Aerodrome Emergency Plan.*

## **G. Aerodrome Movement Area and Obstacle Limitation Surface Inspection by the Aerodrome Operator**

Particulars of the procedures for the inspection of the aerodrome movement area and obstacle limitation surfaces, including the following:

- i. arrangement for carrying out inspections, including runway friction and water depth measurement on runways and taxiways, during and outside the normal hours of aerodrome operations,
- ii. arrangement and means of communicating with the Air Traffic Control during an inspection;
- iii. arrangement for keeping an inspection logbook and the location of the logbook;
- iv. details of inspection intervals and times;
- v. inspection checklist;
- vi. arrangement for reporting the results of the inspection and for taking prompt follow-up actions to ensure correction of unsafe conditions; and
- vii. the names and roles of persons responsible for carrying out inspections and their telephone numbers during and after working hours.

## **H. Visual Aids and Aerodrome Electrical System**

Particulars of the visual aids and electrical systems provided at the aerodrome and their lay out plan. Procedures for the inspection and maintenance of the aeronautical lights (including obstacle lighting), signs, markings and aerodrome electrical system etc. shall be prepared separately for each type of facility. Each procedure shall include:

- i. arrangement for carrying out inspections during and outside the normal hours of aerodrome operation and the checklist for inspections;
- ii. arrangement for recording the result of inspection and for taking follow-up action to correct deficiencies;
- iii. arrangement for carrying out routine maintenance and emergency maintenances;

- iv. arrangement for secondary power supplies, if any, and if applicable, particulars of any other method of dealing with partial or total system failure;
- v. the names and roles of the persons responsible for inspection and maintenance of the lighting and the telephone numbers for contacting those persons during and after working hours.

*Note - If any such procedure is voluminous, it may be prepared and bound separately, however a reference shall be made available in the Aerodrome Manual.*

#### **I. Movement Area Maintenance**

Particulars of the facilities and procedures for the maintenance of movement area, including:

- i. Arrangement for maintaining the paved areas;
- ii. Arrangement for maintaining the runways and taxiway strips; and
- iii. Arrangement for maintaining the of aerodrome drainage.

#### **J. Aerodrome Works - Safety**

Particulars of the procedures for planning and carrying out works safely (including works which may have to be carried out at short notice) on or in the vicinity of the movement area that may extend above an obstacle limitation surface including the following:

- i. Arrangement for communicating with Air Traffic Control during the progress of such works;
- ii. Names, telephone numbers and roles of the persons and organizations responsible for planning and carrying out the works and the arrangement for contacting those persons and organizations at all times;
- iii. Names of the aerodrome fixed-base operators and aircraft operators who are to be notified of the work, and their telephone numbers during and after working hours; and
- iv. Distribution list for work plans, if required.

**K. Apron Management**

Particulars of the apron management procedures,

- i. Arrangement between air traffic control and the apron management unit; (ii) Arrangement for allocating aircraft parking positions;
- ii. Arrangement for initiating engine start and ensuring clearance of aircraft push-back;
- iii. Marshalling service; and
- iv. Follow-Me service.

**L. Apron Safety Management**

Procedures to ensure apron safety, including:

- i. protection from jet blasts;
- ii. enforcement of safety precautions during aircraft refuelling operations; apron sweeping;
- iii. Apron cleaning;
- iv. Arrangements for reporting incidents/accidents on an apron; and
- v. Arrangements for auditing the safety compliance by all personnel working on the apron.

**M. Airside Vehicle Control**

Particulars of the procedure for the control of surface vehicles operating on, or in the vicinity of, the movement area, including the following:

- i. Details of the applicable traffic rules (including speed limits and the means of enforcement of the rules); and
- ii. the method of issuing driving permits for operating vehicles in the movement area

**N. Wildlife Hazard Management**

Particulars of the procedure to deal with danger to aircraft operations caused by the presence of birds or mammals in the aerodrome flight pattern or movement area, including the following;

- i. arrangement for assessing any wildlife hazard;
- ii. arrangement for implementing wildlife control programmes; and
- iii. (names and roles of the persons responsible: for dealing with wildlife hazards, and their telephone numbers during and after working hour.

**O. Obstacle Control**

Particulars setting out the procedures for:

- i. monitoring the obstacle limitation surface and Type A Chart take-off surface for obstacles;
- ii. controlling obstacles within the authority of the operator;
- iii. monitoring buildings or structure development in relation to their height within the boundaries of the obstacle limitation surface;
- iv. the control of new developments in the vicinity of aerodromes; and
- v. notifying the GCAA of the nature and location of obstacles and any subsequent addition or removal of obstacle for necessary including amendment of the AIS publications.

**P. Disabled Aircraft Removal Plan and Procedure**

Particulars of procedure for removing an aircraft which disabled on or adjacent to the movement area including the following:

- i. Roles of the aerodrome operator and the holder of the aircraft of registration;
- ii. Arrangement for notifying the holder of the certificate of registration;
- iii. Arrangement for liaising with the air traffic control;
- iv. Arrangement for obtaining equipment and persons to remove the disabled aircraft; and
- v. Names and roles of persons responsible for arrangement of the removal of disabled aircraft and their telephone numbers.

## **Q. Handling of Hazardous Material**

Particulars of the procedures for the safe handling and storage of hazardous material on the aerodrome, including the following:

- i. the arrangement for special areas on the aerodrome to be set-up for the storage of inflammable liquids (including aviation fuels) and any other hazardous materials and
- ii. the method to be followed for the delivery, storage, dispensing and handling of hazardous materials.

*Note. - Hazardous materials include inflammable liquids and solid, corrosive liquids, compressed gases and magnetized or radioactive materials. The arrangement to deal with an accidental spillage of hazardous material should be included in the aerodrome emergency plan.*

## **R. Low Visibility Operations**

Particulars of procedures to be introduced for low visibility operations, including the measurement and reporting of runway visual range, as and when required and name and telephone numbers during and after working hours of the persons responsible for measuring the runway visual range.

## **S. Protection of Sites for Radar and Navigational Aids**

Particulars of the procedure for the protection of radar and radio navigational aids located on the aerodrome to ensure that their performance will not be degraded, including the following:

- i. The arrangement for the control of activities in the vicinity of radar and
- ii. Nav Aids installations;
- iii. The arrangement for ground maintenance in the vicinity of these installations; and
- iv. Its the supply and installations of signs warning of hazardous microwave radiation.

*Note 1. - In writing the procedure on each category clear and precise information should be include on:*

- *when, or in what circumstances, is an operating procedure to be activated;*
- *how is an operating procedure activated;*
- *actions to be taken;*
- *the person(s) to carry out the actions; and*
- *equipment, and access to such equipment, necessary for carrying out the actions.*

*Note 2. - If any of the procedures specific above is not relevant or applicable, the reason should be given*

- i. the arrangement for the control of activities in the vicinity of radar and Nav Aids installations;
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- *equipment, and access to such equipment, necessary for carrying out the actions.*

*Note 2. - If any of the procedures specific above is not relevant or applicable, the reason should be given.*

#### **4.5. PART 5 - AERODROME ADMINISTRATION AND SAFETY MANAGEMENT SYSTEM**

- a. Particulars of the aerodrome administration, including the following:
  - i. Aerodrome organization structure chart showing the names and positions of key personnel, including their responsibilities;
  - ii. The name, position and telephone numbers of the person who has overall responsibilities; aerodrome safety; and
  - iii. Airport committees
- b. Safety Management System (SMS) – A safety management system established for ensuring compliance with all safety requirements and achieving continuous improvement in safety performance, the essential features being:
  - i. Safety policy, insofar as applicable, on the process of safety management and its relations to the operational and maintenance process;
  - ii. Structure or organization of the SMS including staffing and assignment of individual and group responsibilities safety issue;

- iii. SMS strategy and planning such as setting safety performance targets, allocating priority for implementing safety initiatives and providing a framework for controlling the risks to a level as low as reasonably practicable keeping always in view the requirements of the Standard and Recommended Practices in Annex 14, Volume I to the Convention on International Civil Aviation and the national regulations, standards, rules or orders;
- iv. SMS implementation including facilities, methods and procedures for the effective communication of safety messages and enforcement of safety requirements;
- v. System for the implementation of, and action on, critical safety areas which require a higher level of, safety management integrity (Safety Measures Programme);
- vi. Measures for safety promotion, accident prevention and system for risk control involving analysis and handling of accident, incidents, complaints, defects, faults, discrepancies and failures, and continuing safety monitoring;
- vii. Internal safety audit and review system detailing the systems and programmes for quality control on safety;
- viii. System for the documentation of all safety related airport facilities as well as airport operational and maintenance records including information on the design and construction of aircraft pavements and aerodrome lighting, The system should enable easy retrieval of records including charts;
- ix. Staff training and competency including review and evaluation of the adequacy of training provided to staff on safety related duties and of the certification system for testing their competency; and
- x. Incorporation of safety related clauses in the contracts for work at the aerodrome and enforcement, thereof

*Note . - If required the SMS may be prepared and bound in a separate folder. However reference for same may be made available wherever needed.*



## 5. MAINTENANCE OF AERODROME MANUAL

The aerodrome owner/operator shall:

- (1) Keep the Aerodrome Manual current at all times;
- (2) Maintain at least one complete and updated current copy of its approved Aerodrome Manual at the aerodrome;
- (3) Provide copy of the approved Aerodrome Manual all the concerned units
- (4) The numbering of the pages and paragraphs should be systematic and in order to facilitate reference.
- (5) The standard of printing, binding and duplication should be such that the aerodrome manual remain intact and legible during normal use and amendments can be inserted easily.
- (6) For the purpose of uniformity and to facilitate examination and review of the structure and the contents of an Aerodrome Manual. The guidelines stated in Para 5 above shall be strictly adhered to.
- (7) The Aerodrome Operator shall be responsible for accuracy and updating of the information contained in the Aerodrome Manual
- (8) For small aerodromes the MOS can be simple and brief as long as it covers procedures and responsibilities essential for satisfactory day-to-day operations. However the manual should include all the contents paragraphs. While preparing the Aerodrome Manual, in case of non-applicability of a contents paragraph, "intentionally left blank" shall be type written to clearly indicate such condition.
- (9) At large aerodromes if the aerodrome owner/operator finds that size and complexity of operations and related procedure is huge and it cannot be easily included in a single document, in such circumstances it will be acceptable if the aerodrome owner/operator identify and give reference within the Aerodrome Manual of the procedures which are not included within it and have been kept separately.
- (10) The information contained in an Aerodrome Manual shall demonstrate that the aerodrome conforms to the standards and practices necessary for ensuring safety of aircraft operations.
- (11) The Aerodrome Manual information will enable the GCAA in assessing the suitability of the aerodrome for permitting a particular level of aircraft operation there at. This information shall also be the basic reference for safety inspections. During the inspection by the officer of

GCAA a copy of the Aerodrome Manual shall be made available to the inspection/audit team.

## **6. NOTIFICATION OF AMENDMENT AND CHANGES TO THE AERODROME MANUAL**

The owner /operator of the licensed aerodrome shall:

- (1) Alter or amend the aerodrome manual, wherever necessary, in order to maintain the accuracy of the information in the manual.
- (2) Ensure that each copy of the manual is numbered and a list of holders is maintained by person responsible for the issue of amendments. An amendment page is made available for recording the amendments numbers, date of incorporation, signature of persons amending and affecting the changes, in the front of each volume.
- (3) Always make changes or addition by additional or replacement page on which the amended material is clearly identified.
- (4) Shall supply copies of any amendments/ changes made in the Aerodrome Manual as per the distribution list within a period of 15 days.