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| KENYA CIVIL AVIATION AUTHORITY | **ADVISORY CIRCULAR**<br><br>**CAA – AC-AGA001**<br><br>**Date:** August 2008 |

# DEVELOPMENT AND PREPARATION OF AERODROME MANUAL

## 1. PURPOSE

This Advisory Circular (**"the Circular"**) provides guidance to Aerodrome Operators in the preparation of the Aerodrome Manual which is a requirement under Part III and Part IV of the Civil Aviation (Aerodromes) Regulations, 2008 with respect to licensed or certificated aerodromes respectively.

## 2. REFERENCES

2.1 The Civil Aviation Aerodrome Regulation, 2008 Part III and Part IV
2.2 The Manual of Aerodrome Standards

## 3. DEVELOPMENT OF THE AERODROME MANUAL

(1) The Manual should address the following questions –

(a) WHO is going to perform the tasks?

(b) WHAT do the tasks consist of?

(c) HOW are the tasks going to be performed? and

(d) WHEN should the tasks occur?

(2) The Operator shall specify the title of the person primarily responsible to perform a given task. Since a substitute might not normally perform (or directly oversee) a required task, the Manual shall provide specific instructions about critical aspects of the job, including whom to contact, where need arises.

(3) All personnel assigned to tasks must be fully familiar with regulatory requirements. The Manual must provide guidance appropriate to the training and experience of the personnel.

(4) The timing of tasks will often be triggered by circumstances, such as a certain depth of a hole, crack in the pavement or presence of birds on the aerodrome. The Manual must clearly define the circumstances that trigger action, and shall address the frequency of tasks that occur on a regular basis.

## 4. GUIDANCE AND PROCEDURES

(1) Aerodrome Operators shall prepare and keep current the Manual in order to give aerodrome personnel instructions and operating procedures on the performance of their duties and obligations.

(2) The Manual shall include –

**Part 1: General**

General information, including the following -

(a) purpose and scope of the aerodrome manual;

(b) the legal requirement for an certificate and an aerodrome manual as prescribed in the Regulations;

(c) conditions for use of the aerodrome - a statement to indicate that the aerodrome shall at all times, when it is available for the take-off and landing of aircraft, be so available to all persons on equal terms and conditions;

(d) the available aeronautical information system and procedures for its promulgation;

(e) the system for recording aircraft movements; and

(f) obligations of the Operator.

**Part 2: Particulars of the Aerodrome Site**

General information, including the following -

(a) a plan of the aerodrome showing the main aerodrome facilities for the operation of the aerodrome including, particularly, the location of each wind direction indicator;

(b) a plan of the aerodrome showing the aerodrome boundaries;

(c) a 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

(d) particulars of the land title of the aerodrome site. If the boundaries of the aerodrome are not defined in the land title documents particulars of the land title to, or interest in, the property on which the aerodrome is located and a plan showing the boundaries and position of the aerodrome.

**Part 3: Particulars of the Aerodrome Required To Be Reported to the Aeronautical Information Service**

**(a) General Information**

(i) the name of the aerodrome;

(ii) the location of the aerodrome;

(iii) the geographical coordinates of the aerodrome reference point determined in terms of the World Geodetic System - 1984 reference datum;

(iv) the aerodrome elevation and geoid undulation;

(v) the elevation of each threshold and geoid undulation, the elevation of each 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) the aerodrome reference temperature;

(vii) details of the aerodrome beacon; and

(viii) name of Operator and address, telephone and facsimile numbers at which the operator may be contacted at all times.

**(b) Aerodrome dimensions and related information**

General 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 and surface type of strip, runway end safety areas, stopways;

(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 for lighting;

(vii) the location and radio frequency of VOR aerodrome checkpoints;

(viii) the location and designation of standard taxi routes;

(ix) the geographical coordinates of each threshold;

(x) the geographical coordinates of appropriate taxiway centre 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 area, 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 Annexes 4 and 15 to the Convention);

(xiii) pavement surface type and bearing strength using the Aircraft Classification Number - Pavement Classification Number (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, take-off distances available, accelerate-stop distance available, landing distance available;

(xvi) disabled aircraft removal plan: the telephone/telex/ facsimile number and e-mail address of the aerodrome coordinator for the removal of a disabled aircraft on or adjacent to the movement area, information on the capability to remove a disabled aircraft, expressed in terms of the largest type of aircraft which the aerodrome is equipped to remove; and

(xvii) rescue and fire-fighting; the level of protection provided, expressed in terms of the category of the rescue and fire-fighting services, which should be in accordance with the longest aircraft normally using the aerodrome and the type and amounts of extinguishing agents normally available at the aerodrome.

## Part 4: Particulars of the Aerodrome Operating Procedures and Safety Measures

### (a) Aerodrome reporting

Particulars of the procedures for reporting any changes to the aerodrome information set out in the Aeronautical Information Publication (AIP) and Aeronautical Information Circular (AIC) and procedures for requesting the issue of Notices to Airmen (NOTAMs), including the following -

(i) arrangements for reporting any changes to the Authority and recording the reporting of changes during and outside the normal hours of aerodrome operations;

(ii) the names and roles of persons responsible for notifying the changes, and their

telephone numbers during and outside the normal hours of aerodrome operations;

(iii) the address and telephone and facsimile numbers, as provided by the Authority, of the place where changes are to be reported to the Authority; and

(iv) Records.

**(b) Access to the aerodrome movement area**

Particulars of the procedures that have been developed and are to be followed in coordination with the agency responsible for preventing unlawful interference in civil aviation at the aerodrome and for preventing unauthorized entry of persons, vehicles, equipment, animals or other things into the movement area, including the following -

(i) the role of the operator, the aircraft operator, aerodrome fixed-base operator, the aerodrome security entity, the Authority and other government departments, as applicable; and

(ii) the personnel responsible for controlling access to the aerodrome, and the telephone numbers for contacting them during and after working hours.

(iii) inspection checklist;

(iv) arrangements for reporting the results of inspections and for taking prompt follow-up actions to ensure correction of unsafe conditions; and

(v) the names and roles of persons responsible for carrying out inspections, and their telephone numbers during and after working hours.

**(c) 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 the malfunction of aircraft in flight; structural fires; sabotage, including bomb threats (aircraft or structure); unlawful seizure of aircraft; and incidents on the airport covering "during the emergency" and "after the emergency" considerations;

(ii) details of test and aerodrome facilities and equipment to be used in emergencies, including the frequency of those tests;

(iii) details of exercises to test emergency plans, including the frequency of those exercises;

(iv) a list of organizations, agencies and persons of authority, both on-and/off-airport, for site roles; their telephone and facsimile numbers, e-mail addresses and the radio frequencies of their offices;

(v) the establishment of an aerodrome emergency committee to organize training and other preparations for dealing with emergencies; and

(vi) the appointment of an on-scene commander for the overall emergency operation.

**(d) 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.

**(e) Inspection of the aerodrome movement area and obstacle limitation surface by the Operator**

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

(i) arrangements for carrying out inspections, including runway friction and water-depth measurements on runways and taxiways, during and outside the normal hours of aerodrome operations;

(ii) arrangements and means of communicating with air traffic control during an inspection;

(iii) arrangements for keeping an inspection logbook, and the location of the logbook;
(iv) details of inspection intervals and times;

(v) inspection checklist;

(vi) arrangements for reporting the results of inspections 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.

**(f) Visual aids and aerodrome electrical systems;**

Particulars of the procedures for the inspection and maintenance of aeronautical lights (including obstacle lighting), signs, markers and aerodrome electrical systems, including the following -

(i) arrangements for carrying out inspections during and outside the normal hours of aerodrome operation, and the checklist for such inspections;

(ii) arrangements for recording the result of inspections and for taking follow-up action to correct deficiencies;

(iii) arrangements for carrying out routine maintenance and emergency maintenance;

(iv) arrangements for secondary power supplies and, if applicable, the particulars of any other method of dealing with partial or total system failure; and

(v) personnel responsible for the inspection and maintenance of the lighting, and the telephone numbers for contacting those persons during and after working hours.

**(g) Maintenance of the movement area;**

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

(i) maintaining the paved areas;

(ii) maintaining the unpaved runways and taxiways;

(iii) maintaining the runway and taxiway strips; and
(iv) the maintenance of aerodrome drainage.

**(h) Aerodrome works – safety;**

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

(i) arrangements for communicating with air traffic control during the progress of such work;

(ii) the names, telephone numbers and roles of the persons and organizations responsible for planning and carrying out the work, and arrangements for contacting those persons and organizations at all times;

(iii) the names and telephone numbers, during and after working hours, of the aerodrome fixed-base operators, ground handling agents and aircraft operators who are to be notified of the work; and

(iv) a distribution list for work plans, if required.

**(i) Apron management;**

Particulars of the apron management procedures, including the following -

(i) arrangements between air traffic control and the apron management unit;

(ii) arrangements for allocating aircraft parking positions;

(iii) arrangements for initiating engine start and ensuring clearance of aircraft push-back;

(iv) marshalling service; and

(v) leader (van) service.

**(j) Apron safety management;**

Procedures to ensure apron safety, including -

(i) protection from jet blasts;

(ii) enforcement of safety precautions during aircraft refuelling operations;

(iii) apron sweeping;

(iv) apron cleaning;

(v) arrangements for reporting incidents and accidents on an apron; and

(vi) arrangements for auditing the safety compliance of all personnel working on the apron.

**(k) 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 enforcing the rules);

(ii) the method of issuing driving permits for operating vehicles in the movement area.

**(l) Birds and wildlife hazard management;**

Particulars of the procedures to deal with the danger posed to aircraft operations by the presence of birds or mammals in the aerodrome flight pattern or movement area, including the following-

(i) arrangements for assessing birds and wildlife hazards;

(ii) arrangements for implementing birds and wildlife control programmes; and

(iii) the names and roles of the persons responsible for dealing with birds and wildlife hazards, and their telephone numbers during and after working hours.

**(m) Obstacle control**

Particulars setting out the procedures for -

(i) monitoring the obstacle limitation surfaces and type A chart for obstacles in the take-off surface;

(ii) controlling obstacles within the authority of the operator;

(iii) monitoring the height of buildings or structures within the boundaries of the obstacle limitation surfaces;

(iv) controlling new developments in the vicinity of aerodromes; and

(v) notifying the Authority of the nature and location of obstacles and subsequent addition of removal of obstacles for action as necessary, including amendment of the Aeronautical Information Services publications.

**(n) Removal of disabled aircraft**

Particulars of the procedures for removing a disabled aircraft on or adjacent to the movement area, including the following -

(i) the roles of the operator and the holder of the aircraft operator certificate;

(ii) arrangements for notifying the aircraft operator;

(iii) arrangements for liasing with the air traffic control unit;

(iv) arrangements for obtaining equipment and personnel to remove the disabled aircraft; and

(v) role and telephone numbers of personnel responsible for arranging for the action as necessary, including amendment of the AIS publications.

**(o) Handling of hazardous materials**

(i) Particulars of the procedures for the safe handling and storage of hazardous materials on the aerodrome, including the following;

aa) arrangements for special areas of the aerodrome to be set up for the storage of inflammable liquids (including aviation fuels) and any other hazardous materials; and

bb) the method to be followed for the delivery storage, dispensing and handling of hazardous materials.

For the purposes of this paragraph "*hazardous materials*" include inflammable liquids and solids, corrosive liquids, compressed gases and magnetized or radioactive materials.

**(p) 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 the personnel, their telephone numbers, responsible for measuring the Runway Visual Range.

**(q) Protection of sites for radar and navigational aids**;

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

(i) arrangements for the control of activities in the vicinity of radar and navigational aids installations;

(ii) arrangements for ground maintenance in the vicinity of these installations; and

(iii) arrangements for the supply and installation of signs warning of hazardous microwave radiation.

Note 1. In writing the procedures for each category, clear and precise information should be included on -

**(1)** when, or in what circumstances, an operating procedure is to be activated;
**(2)** how an operating procedure is to be activated;
**(3)** actions to be taken;
**(4)** the equipment necessary for carrying out the actions, and access to such equipment.

Note 2. If any of the procedures specified above are not relevant or applicable, reasons should be given.

**Part 5: Aerodrome Administration and Safety Management System**

**(a)** Aerodrome administration;

Particulars of the aerodrome administration, including the following –

(i) an aerodrome organizational chart showing the names and positions of key personnel, including their responsibilities;

(ii) the name, position and telephone number of the person who has overall responsibility for aerodrome safety; and

(iii) airport committees.

**(b) Safety Management System**

Particulars of the safety management system established for ensuring compliance with all safety requirements and achieving continuous improvement in safety performance, the essential features being -

(i) the safety policy, in so far as applicable, on the safety management process and its relation to the operational and maintenance process;

(ii) the structure or organization of the Safety Management System, including staffing and the assignment of individual and group responsibilities for safety issues;

(iii) Safety Management System strategy and planning, such as setting safety performance target, allocating priorities for implementing safety initiative and providing a framework for controlling the risks to as low a level as is reasonably practicable keeping always in view the requirements of the prescribed standards and recommended practice, and regulations;

(iv) Safety Management System implementation, including facilities, methods and procedures for the effective communication of safety messages and the enforcement of safety requirements;

(v) a 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 and accident prevention and a system for risk control involving analysis and handling of accidents, incidents, complaints, defects, faults, discrepancies and failures, and continuing safety monitoring.

(vii) the internal safety audit and review system detailing the systems and programmes for quality control of safety;

(viii) the system for documenting all safety-related airport facilities as well as airport operational and maintenance records, including information on the design and construction of aircraft payments and aerodrome lighting. The system should enable easy retrieval of records including charts;

(ix) personnel training and competency, including the review and evaluation of the adequacy of training provided to personnel on safety-related duties and of the certification system for testing their competency; and

(x) incorporation and enforcement of safety-related clauses in the contract for construction work at the aerodrome.

## 5. PUBLIC PROTECTION AND ENVIRONMENTAL CONCERNS

(1) The Manual shall specify procedures for the protection of the environment and the general public in accordance with the National Environmental Management Act.

(2) The Manual shall further describe arrangements for provision of personnel protective gear, installation of protective equipment and warning signs of micro wave radiation, jet blast or other hazard.

## 6. EXEMPTIONS AND DEVIATIONS

(1) **Exemptions;**

An exemption is a waiver from compliance with a requirement under the Regulations and evidence of the exemption shall be in writing. Aerodrome Operators are reminded that current exemptions granted will be recoded and filed by the Authority in the individual aerodrome licensing or certifications files and are subject to inspection by the Authority.

(2) **Deviations**

**(a) Deviation from prescribed standard or procedure**

The Regulations permit the use of alternative means to achieve a level of safety equivalent to that established by the prescribed standard. Technically this constitutes a modification to a standard or prescribed procedure, which must be approved by the Authority after an aeronautical study. This is usually qualified by acceptable conditions and procedures imposed by the Authority. Regulation 134 requires deviation from a prescribed standard or procedure to be setout in an endorsement on the Manual.

(b) **Deviations during an emergency**

During an emergency, the Aerodrome operator may deviate from complying with the Regulations or part thereof, to the extent required by the emergency. A deviation in an emergency is a judgment call on the part of the Aerodrome Operator or his/her designated personnel.

(c) **Reporting a Deviation:**

The Manual shall explain how and when the Operator should notify the Authority of a deviation. Should a deviation be necessary in case of an emergency, the Operator should as soon as practicable, but in any case not later than 14 days after the emergency, notify the Authority of the deviation. Where required by the Authority, the Operator will provide this notification in writing.

## 7. REVIEW OR AMENDMENT OF THE MANUAL

(1) Manuals shall be reviewed or amended by the Aerodrome Operator to ensure they contain adequate content and are in compliance with applicable regulations, safe operating practices, and the aerodrome operating procedures.

(2) **Submission of the Manuals**

For the initial approval, copies of the Manual to be approved shall be submitted to the Authority for the initial review. If found satisfactory, the applicant will be advised in writing to submit two hard copies of the Manual for an in- depth review. If unsatisfactory the Manual will be returned to the Aerodrome Operator with a written explanation indicating the areas of non – compliance.

(3) **Initial Approval Review**

In the initial approval review of the Manual, a comprehensive review shall be conducted by the Authority to verify that it conforms to the following format and style.

**(a)** **Form**. The Manual has been prepared and maintained in conventional paper format (book form) and in electronic form, and easy to revise.

**(b)** **Introduction**. The first page of the Manual contains a brief statement on the purpose, goals, objectives and operational strategies for personnel.

**(c)** **Revision Control**. The Manual is easy to amend and contains a revision page(s) and a list of the effective pages or section. The control date of the most recent revision of each individual page must appear on each page.

**(d)** **Table of Contents.** The Manual has a table of contents with respective page numbers.

**(e)** **A Statement of Compliance.** A statement that indicates regulatory requirements have been compiled with.

**(f)** **Definitions.** Significant terms used in the Manual shall be defined. Any acronym or abbreviation not in common use shall be defined.

**(g)** **Elements of Style.** The Manual shall be composed in the style of general technical writing and this style shall be clear, concise and easy to understand.

(4) **Adequacy of Procedures**

The Manual procedures shall be in compliance with the requirements of the Regulations, consistent with safe operating practices and based on sound rationale or demonstrated effectiveness. The following should be clearly demonstrated –

**(a)** **Objective** The objective of a procedure must be stated clearly;

**(b)** **Logical Sequence**. Procedures are to flow in a logical step-by-step sequence rather than a narrative format. The most effective procedures are usually simple and each contains only the information necessary for accomplishing that procedure;

**(c) General Considerations**

(i) A procedure must be an acceptable method for accomplishing and achieving the intended objective.

(ii) The individual responsible for each step of a procedure shall be clearly identified.

(iii) The acceptable standards of performance for a procedure shall be stated where those standards are not commonly understood or clearly obvious.

(iv) Since a variety of personnel with differing degrees of expertise are involved in procedures, adequate information concerning the accomplishment of a procedure must be provided for the least experienced individual. A procedure may be described very briefly and concisely when the user is capable of achieving the objective without extensive direction or detail. When the user has limited training or experience, however, a procedure must be described in enough detail for the user to correctly accomplish it. When the user has limited access to other sources of information and guidance while performing a procedure, enough detail should be provided to make the user independent of other sources of information.

(v) When a form, checklist, or tool is necessary to accomplish a procedure, the location of that item shall be indicated in the Manual.

(vi) The Aerodrome Operator shall ensure that sufficient time is available for the user to accomplish a procedure. Where the Aerodrome Operator finds that sufficient time is unavailable to the user for accomplishing a procedure, the Aerodrome Operator shall undertake to revise either the procedure or the user's duties.

(5) **Approval of the Manual**;

(a) Where upon evaluation, the Authority finds the Manual satisfactory, the Authority shall approve the Manual.

(b) The approved Manual shall contain the following –

(i) Control sheets, shall have the Authority stamp with the phrase "***CAA APPROVED***", the effective date of approval, and signature on both copies.

(ii) One copy of the approved manual will be returned to the operator with a notification letter stating that the material is approved. The letter should also contain a statement advising the operator to maintain, for its records, the signed control sheets with the approval annotation.

(iii) An approval note on its front page.

(6) **Amendments to the Approved Manuals**

(a) The Authority shall review all amendments to the Manual, and shall not limit this review to the proposed amendments.

(b) Continuous review of the manuals by the operator is necessary because both the aviation environment and the operations are constantly changing.

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Civil Aviation Authority