



GHANA  
CIVIL AVIATION AUTHORITY

# ADVISORY CIRCULAR AC-AD-011

## ASSESSING COMPETENCE OF AERODROME RESCUE AND FIRE FIGHTING PERSONNEL AND TRAINING FACILITIES/INSTITUTIONS

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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 (Aerodromes) Regulations, 2011, LI 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 document provides guidance for Aerodrome Operators to establish training programme for Rescue and Firefighting Service (RFFS) and set requirements used by the Authority in approving Registered Training Organisations (RTOs) and in assessing competence of aerodrome rescue and fire fighting personnel.

**APPROVAL**

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## Definition of Terms

The meaning of the key terms as used in this Advisory Circular are stated herein for easy interpretation.

<b>Acquisition</b>	The stage at which an individual is undertaking a Structural learning programme which is designed to develop the knowledge, skills, attitude and understanding for a particular role.
<b>Application</b>	The stage at which individuals having demonstrated that they are competent in acquisition are able to constantly apply their knowledge, skills and understanding in the workplace relative to their standards.
<b>Assessment</b>	The means by which evidence of performance collected and compared with the requisite standards and a judgment about performance is made and recorded.
<b>Assessor</b>	A person acceptable to make judgments about Performance against the requirements of the standards of the regulation.
<b>Competence</b>	The ability to apply knowledge, understanding and skills in performing to the standards required in employment.
<b>Certificate of Competence</b>	The evidence that an individual has satisfied the relevant occupational standards in acquisition and application.
<b>Evidence</b>	Anything that is presented as a proof of competence.
<b>Function</b>	A complete activity that may take into account number of tasks.
<b>Hazard</b>	Something with the potential to cause harm.
<b>Knowledge</b>	What the individual must know or understand in order to carry out a role to the standard required.
<b>Learning</b>	Structured training performance, made up of training modules which have been designed for support. The Learning and development of individuals to enable them achieve and maintain the performance standards identified for their role.
<b>Operational Experience</b>	Experience gained whilst employed as part of the minimum number of RFFS personnel designed to make an immediate response to an aircraft accident.

<b>On-the-Job Training (O.J.T)</b>	The practical integration of previously acquired knowledge and skills under the supervision of an experienced superior and competent officer in a live situation.
<b>Performance Standard</b>	Bench marks or specification of expected work performance.
<b>Refresher Training</b>	Knowledge and skills to maintain competency.
<b>Regulatory</b>	The Regulatory Authority is the Ghana Civil Aviation Authority (GCAA).
<b>Risk</b>	A means of the likelihood that the harm from a particular hazard will occur, taking into account the possible severity of the harm.
<b>Skills</b>	Behaviours or actions which require practice in order to be performed satisfactorily. The skills or duties may be manual, social, interpersonal or intellectual.
<b>Simulation</b>	Any structured assessment exercise involving the organization and achievement of a specific task which seeks to reproduce a real life situation.
<b>Structured Programmes</b>	It comprise training and assessment learning organized in a manner that enable individuals to achieve competency in a particular set of roles and/or tasks according to their goals.

## **1.0 INTRODUCTION**

This AC gives suggestions on different curricula of fire service courses together with general point of training for duties in the rescue and firefighting services (RFFS). Information is also made to ensure complete familiarity with both the practical aspects of fire fighting, the equipment and aircraft likely to be encountered.

Different hazards could be encountered during aircraft operations, emergencies of major proportions could develop with startling suddenness. Initiations of the correct actions in such circumstance are essential and vital to the successful fulfilment of the role of the RFFS. Only thorough training can provide the background knowledge and personal confidence, which are the foundations for prompt and correct actions.

## **2.0 RFFS TRAINING PROGRAMME**

### **2.1 TRAINING OF AERODROME RESCUE AND FIRE FIGHTING (RFFS) PERSONNEL**

The primary duties of Rescue and Fire Fighting Service (RFFS) personnel consist solely of saving lives. These personnel are called upon to face a major aircraft accident/ incident involving large numbers of rescue. They also attend a large number of standbys to cover movement of aircraft in circumstances where the possibility of an accident may be anticipated and also domestic incidents within the boundary of the airport, which they must be adequately trained to deal with. This training can only be done if skilfully planned and through the implementation of rigorous programmes which cover the use of all equipment which may be used in the event of a major aircraft incident or accident. Training should therefore fall into two categories:-

- i. Basic training which entails the use and maintenance of equipment
- ii. Operational tactics and strategy to ensure the quick deployment of personnel and equipment in order to control fire and permit rescue operations to be carried out.

As in all aspects of any training programme, it is essential that the officer who is responsible for setting out and planning training programmes maintain the correct level of interest, enthusiasm and motivation. Each new type of aircraft using the aerodrome brings with it fresh problems which must be assessed and incorporated in the training programme. The training programme has to be developed to such an extent so as to ensure that both men and equipment are at all times ready and efficient. This represents a very high standard of achievement but anything less than full efficiency is not only good enough but may be dangerous both to those in need of aid and also to those who are seeking to give such aid. It is mandatory for Aerodrome Operators to establish a system of control over the competence of the personnel who are to man the rescue and fire fighting vehicles together with a method of validation and re-validation of competence of those personnel.

### **2.2 BASIC TRAINING**

The basic training should cover areas such as;

- i. Chemistry of fire and principle of combustion
- ii. Temperature and transmission of heat
- iii. Cause of fire
- iv. Elementary hydraulics

- v. Aircraft rescue and fire fighting techniques
- vi. Extinguishing agents
- vii. Airport topography
- viii. Aircraft familiarization
- ix. First Aid

A detailed expansion of the basic training courses will be discussed in the syllabus. (Section 3.0)

### **2.3 OPERATIONAL TACTICS**

Whilst personnel are being trained in the handling of firefighting equipment and the various uses to which it can be put, they should also receive training in the tactics to be employed in extinguishing aircraft fires and carry out rescue operations. Such training needs to be repetitive and rationalized to such extent that rescue and Fire Service personnel can carry out their duties technically and efficiently. Operational tactics and strategy training is adopted to ensure correct deployment of personnel and equipment in such a manner that survivable conditions exist for the occupants within an aircraft involved in the fire and following these steps rescue can be effected. The following should be covered in the tactics training programme:

- i. The approach;
- ii. Positioning of appliances;
- iii. Deployment of side-lines;
- iv. Fire control and extinguishment; and
- v. Methods of search inside an aircraft and its surroundings for rescue purposes.

Note: Training manual, technical magazines, books, etc, should be available within the fire station to encourage private studies.



### **3.0 TYPES OF FIRE SERVICE COURSES AND SYLLABI:**

#### **3.1 BASIC COURSE**

This is a mandatory course that should be attended by all recruits to the aerodrome fire services as soon as possible after appointment. The syllabus should include:-

- i. Technical instruction
- ii. Classes of fire
- iii. Principles of fire extinction
- iv. Action of various extinguishing agents
- v. Methods of fighting civil and military aircraft fire
- vi. Elementary fire prevention protection
- vii. Practical drills
- viii. Night exercise

#### **3.2 FIRE FIGHTER COURSE**

This course should be attended by all firemen as soon as possible following successful completion of the basic course. The course should provide essentially practical training with emphasis on the tactical deployment of men and appliance to achieve rescue from aircraft involved in fire and should also include other forms of fire training such as rough ground driving techniques etc. The syllabus for Fire Fighter Course includes:

- i. Fire Science algebra, mensuration, chemistry, heat, electricity, elementary hydraulics
- ii. Knots and lines
- iii. Fire and fire extinction
- iv. Extinguishing agents, foam making liquids
- v. Extinguishing agents, halogenated, hydrocarbon,
- vi. Extinguishing agents, dry chemical powders
- vii. Airport familiarization
- viii. Pumps and primers (theory and practical)
- ix. Rescue and rapid intervention tenders
- x. Aircraft seating layouts etc.
- xi. Aviation fuels, types, fire prevention
- xii. Ladders
- xiii. Aircraft engines
- xiv. Helicopter fire and analysis
- xv. Aircraft post-accident procedure
- xvi. Hanger fire risks – fire protection requirements

- xvii. Emergency organization
- xviii. Fire prevention LPG (Liquid Petroleum and Gaseous substances), hazard and installation
- xix. Radioactive freight packaging procedure
- xx. Aircraft rescue procedures
- xxi. First aid training
- xxii. Breathing apparatus

### **3.3 CREW COMMANDERS COURSE**

This course should be attended by officers who have successfully completed a Fire Fighter Course. The syllabus deals comprehensively with most aspects of station administration and organization and cover the planning of distance training programme, station records, discipline, aerodrome emergency orders and fire prevention, etc. Highlights of the syllabus are given below:-

- i. Fire practice ground tactics
- ii. Operational principles and management of foam and water tenders
- iii. General fire prevention on aerodromes
- iv. Fire appliances and their design requirements
- v. Dry chemical powders, operations and techniques
- vi. Rescue equipment, rescue tenders, description and design features
- vii. Fire prevention legislation
- viii. Breathing apparatus
- ix. Halogenated hydrocarbons
- x. Station training, planning of training programme at station level
- xi. Incident report
- xii. Aircraft fuel
- xiii. Report writing
- xiv. Aircraft construction materials
- xv. Aircraft rescue tactics
- xvi. Work of air traffic control and liaising with fire service
- xvii. Dangerous goods
- xviii. Aerodrome licensing requirements
- xix. Functional leadership, health and safety at work etc.

### **3.4 WATCH COMMANDER COURSE**

All officers who have successfully completed a crew commander course should attend this course. The syllabus is designed to acquaint officers with development

in the field of airport fire prevention rescue and fire fighting, appliance design and handling etc. The syllabus content includes:

- i. Extinguishing agents, foam-making liquids, halons etc
- ii. Major foam tenders operations and use of monitors
- iii. Aircraft internal fire
- iv. Aviation fuels
- v. Specialist rescue equipment
- vi. Station management
- vii. Post-accident procedures and scene management
- viii. General design and functional requirement of aerodrome fire appliances
- ix. Droughts ventilation unit
- x. Principles and organization of aerodrome fire prevention
- xi. Development in fire engineering
- xii. Aircraft design features
- xiii. Planning fire emergency organization
- xiv. LPGs
- xv. Station training/management
- xvi. Breathing apparatus
- xvii. Aerodrome manual
- xviii. Aerodrome categorization
- xix. Aerodrome inspection and maintenance
- xx. Risk assessment
- xxi. Transportation of dangerous goods

### **3.5 SPECIALIST COURSE**

- i. Breathing apparatus wearer
- ii. First aid
- iii. Driving/pump operation
- iv. Watch room procedures
- v. Breathing apparatus instructor
- vi. General fire instructor
- vii. Fire prevention
- viii. Fire accident/Incident
- ix. Breathing apparatus compressor
- x. Airside driving

**Note 1:** Each training course outlined should terminate with oral, technical, practical and written technical tests. The minimum qualification standard should not be less than 70%.

**Note 2:** All RFFS training programmes must include human performance and team coordination – ASM 13.2.2.35

All grades of personnel should undergo recurrent/further training within a space of 2 years.

## **4.0 GUIDELINES/REQUIREMENTS FOR APPROVING RFFS AVIATION TRAINING FACILITIES/ INSTITUTIONS**

- 4.1** The Aerodrome Standards Manual (ASM) 13.2.2.34 stipulates that “Rescue and Fire Fighting personnel shall be properly trained to perform their duties in an efficient manner and shall participate in live fire drills commensurate with the types of aircraft and types of Rescue and Fire fighting equipment in use at the aerodrome, including pressure-fed fuel fires”. Equally, facilities to be used for training of RFFS personnel including all RFFS employed in Ghanaian certified aerodromes are to be fully approved by the Authority.

The approval to operate training facilities for the technical/ practical training of RFFS personnel is conferred by the GCAA.

- 4.2** Training providers within the Authority’s jurisdiction must apply for approval and the following particulars should be included:

- i. Training providers name
- ii. Training providers full corporate address
- iii. Certificate of registration as training provider
- iv. State of the training equipment and teaching aids of the training provider(s) and
- v. Statement of the number of simultaneously trained trainees
- vi. Copies of the programme, syllabus, testing and examination method and assessment arrangement
- vii. Training provider’s manual of procedures

- 4.3** The Authority’s approval process will normally consist of the following three phases namely:-

- a. An informal discussion stage, at which the Authority’s overall requirements will be explained and questions answered;
- b. A paper assessment stage in which programme content, details of personnel, course structure etc. will be reviewed;
- c. A practical assessment stage in which the physical and practical facilities will be formally inspected and lectured sampled. On completion of the above three phases, the training provider will be considered for recognition and approval on the basis of the information provided and obtained. The Authority will confirm in writing the acceptance of a training provider to conduct mandatory training.

On-going approval will be subject to regular inspections/ audits under the arrangement of the appropriate department administered by the Authority. If the Authority becomes aware that the required standards are no longer being met, the Authority will give formal written notice to that effect. If in the opinion of the Authority and after due written notice, the standards continue to be below those required; the recognition and approval may be revoked, suspended or varied

#### **4.4 APPEALS**

Any person who has the opinion that training providers, during or at the end of a course or programme has disadvantaged him/her by the conduct of an assessment should have the right to appeal.

Every training provider should therefore establish and publish an internal appeal procedure as part of the training providers' manual of procedures that is required for approval by the Authority during its formal application.

#### **4.5 MANAGEMENT STRUCTURE**

The management structure should ensure adequate supervision of all grades of staff involved in programme delivery by persons having appropriate experience and the necessary competence to maintain high professional standards

#### **4.6 STAFF LEVEL**

Sufficient and adequate numbers of suitably qualified instructors and technical support must be available to carry out the approved training.

#### **4.7 INSTRUCTORS**

All instructors engaged in training must be competent and suitably qualified for the work that they undertake.

#### **4.8 CERTIFICATE OF COMPETENCE**

A certificate of competence, serialized, validated and dated for the period specified, as per the applicable GCAA requirements should be issued of which record of the specific training name of the delegate, serial number of certificate

of competence and date that the training was provided to the individual be retained by the training provider, following satisfactory completion of written, oral and continuous assessment appropriate to the relevant programme.

#### **4.9 EQUAL OPPORTUNITY POLICY**

Where Aerodrome Operators provide training, the training provider should ensure that they have a policy that allows candidates to receive equal consideration, opportunity and access to training and development.

It is vital to state that training may not be taken up before conferment of the approval.

## **5.0 CONCLUSION AND SUMMARY**

In the last few sections, efforts have been made to emphasize the relevance of RFFS personnel training and how critical it is to ensure that competency is maintained throughout the operational duration of RFFS personnel job.

The importance of ensuring that training facilities are within the acceptable standards and training instructors – possess the necessary qualifications has also been stressed. GCAA will ensure through guidelines set in this Advisory Circular that:

- i. All RFFS personnel at Ghanaian Certified Aerodromes shall maintain their competences while working at the aerodrome.
- ii. Training providers/institutions within the GCAA's jurisdiction and individuals wishing to offer RFFS training are requested to apply for GCAA approval through the set guidelines.