



Safety Information Bulletin

Operations

SIB No.: 2018-03

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Subject: Carriage and use of Automatic External Defibrillators

Ref. Publications:

- Commission Regulation (EU) [965/2012](#) of 5 October 2012, hereafter referred to as the Air Operations Regulation.
- ICAO Annex 6 Part I, Operation of Aircraft – International Commercial Air Transport – Aeroplanes.

Applicability:

Aeroplane Operators conducting Commercial Air Transport (CAT) operations.

Description:

The carriage of automated external defibrillators (AED) has been debated at length in the aviation community. EASA has received and continues to receive regularly questions on the matter. Technological developments of the devices available on the market and changing passenger demographics are further reasons to re-consider the topic. A survey conducted among European Competent Authorities also showed that many large CAT operators have chosen to carry AEDs as a normal practice in their operations and train their crews on that.

The objective of this SIB is to provide recommendations to operators on the carriage and use of such devices.

Current regulatory situation in Commercial Air Transport:

- ICAO annex 6 Part I, namely attachment B with reference to 6.6.2 on medical supplies, recommends operators to determine through a risk assessment the need to carry an AED on aeroplanes with more than 100 passengers flying on sectors of more than two hours.
- EASA, namely AMC1 CAT.IDE.A.225 on emergency medical kits (EMK), recommends operators to determine through a risk assessment the need to carry an AED in the EMK on aeroplanes with a maximum operational passenger seating configuration (MOPSC) of more than 30 passengers flying more than 60 minutes at normal cruising speed from a suitable aerodrome.
- The FAA, namely FAR 121.803 (c)(4) on emergency medical equipment, requires AEDs on aeroplanes where a cabin crew member is required and with a maximum payload of more than 7 500 pounds (approximately 30 passengers or more).

Rationale to carry an AED:

As a therapeutic tool, defibrillators are used to treat ventricular fibrillation (VF), the most common form of treatable cardiac arrest. When a VF occurs, the survival rate is good if the electrical shock

This is information only. Recommendations are not mandatory.



is applied very soon after the arrest, preferably within 4 minutes. After the initial 4 minutes, cardio-pulmonary resuscitation (CPR) becomes the priority in order to prevent brain damage. However, survivability decreases rapidly with time. The average figure that may be assumed is 10 % decrease per minute of delay in the intervention. After 7 to 9 minutes, the survival rate is low and the amount of brain damage caused by lack of blood to the brain is likely to have severe consequences.

CPR without electrical shock is not particularly effective and diversion to the nearest airport and transport to a hospital will normally take an hour or more. If used in the first 4 minutes following a VF, the AED may increase the survival rate up to 50 %. AEDs in combination with CPR may increase the overall chances of survival in case of a sudden cardiac arrest by approximately 10 % compared with CPR only intervention.

The following data illustrates the current situation in the European Union regarding treatment of cardiac arrest:

- Each year, approximately 350 000 people experience non-traumatic Out-of-Hospital Cardiac Arrest (OHCA) treated by emergency medical services (EMS) personnel.
- Approximately 60 % of OHCA victims are treated by EMS.
- 25 % of OHCA victims treated by EMS have no symptoms before the onset of arrest.
- Among EMS-treated OHCA cases, 23 % have an initial rhythm of VF or ventricular tachycardia (VT). As such, they could respond well to treatment with an AED.
- Overall survival rates are approximately 10 %. Among young victims, the survival rate is about 5 %.

Furthermore the demographics of air passengers is changing as the population is getting older, with more frailties and medical conditions, while aeroplanes are becoming larger in terms of passenger capacity, and the flights longer. Because of these developments, the likelihood of having VF occurrences during flights increases.

Available types of AEDs and Characteristics:

Modern AEDs are safe and easy to use. They are fully automated, i.e. capable of reading the pulse of the patient and discharge the electrical shock only when needed. They are compact in size and light, requiring minimal maintenance.

Risks:

AEDs are generally safe to use. There are no reports of AEDs harming bystanders or users. Also, there are no reports of AEDs delivering unrequired shocks.

Risks related to the presence of lithium batteries should be assessed. AEDs carried on an aeroplane must comply with the applicable technical standards such as (E)TSO-C142, Lithium Batteries.

At this time, the safety concern described in this SIB does not warrant the issuance of an operational directive under Commission Regulation (EU) No. [965/2012](#), Annex II, ARO.GEN.135(c).

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Recommendation(s):

EASA recommends CAT operators to carry an AED on aeroplanes having a MOPSC of 30 or more where at least one cabin crew member is required.

EASA recommends CAT operators to consider the following aspects in the implementation of CAT.IDE.A.225 and the associated AMC1:

Risk Assessment Criteria:

The need to carry an AED should be assessed primarily against passenger benefit. However, when an AED is carried, its use should be also considered in the event of crew incapacitation.

Operators should consider at least the following elements in the risk assessment:

- The seating capacity of the aeroplane in use;
- The passenger demographics;
- The total number of passengers transported per year;
- Duration of the flight and route structure, although the distinction between long-haul and short-haul routes is less relevant as the time factor in getting to an airport becomes negligible in a situation where minutes are vital. However, it is relevant to consider the availability of airports where medical assistance is available after the use of an AED in flight;
- When available, guidance from aircraft manufacturers for carriage and use of an AED on their respective aircraft types.

Types of AED:

Fully automated AEDs, with no manual functions, are recommended as they are the easiest and safest to use, requiring minimal training. Security risks, possible with other types of AEDs, are also excluded for this type of device. An AED may be also a function of a medical device with other functionalities; in this case however, it is up to the operator to consider in the risk assessment any differences and additional needs for its carriage and use. The use of AEDs is recommended in conjunction with other resuscitation tools present in the EMK.

Maintenance:

The operator carrying an AED should ensure the serviceability of the device especially with regard to the batteries. Periodical checks in accordance with instructions of the device manufacturer should be included in the maintenance programme.

Crew Training:

The use of AEDs should be part of the initial and recurrent training of cabin crew. The training material should be developed by or in cooperation with medical personnel. The amount of training required is considered to constitute a small add on to the existing First Aid training syllabi.

Contact(s):

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