

Critical situation during flight

*KOLESÁR Ján, KOŠČÁK Peter, VAJDOVÁ Iveta,
MELNÍKOVÁ Lucia*

*Department of Air Transport Management, Faculty of Aeronautics, Technical
University in Košice, Rampová 7, 041 21 Košice, Slovakia,
E-mail: jan.kolesar@tuke.sk, peter.koscak@tuke.sk, iveta.vajdova@tuke.sk,
lucia.melnikova@tuke.sk*

Abstract:

The article deals with the issue of the crisis management of the air transport company, specifically on how to deal with crisis situations during flight. The content of the article is an analysis of specific crisis situations and a description of the steps of their solution.

Keywords:

Crisis, management, security, aviation, flight, solution

INTRODUCTION

In order to cope with the critical situations during a flight, it is necessary for the procedures to be handled not only by crew members but also by passengers. For this reason, each flight begins with a detailed safety demonstration by the cabin crew indicating what may not be allowed during the flight (e.g. smoking or use of some electronic devices), how to fasten the seat belt, how to use the rescue means, correctly store hand luggage and where the nearest escape exit is located.

1. FIRE DURING FLIGHT

In the event of a fire during a flight, it is very important to specify in which part of the aircraft the fire occurs, whether it burns in the cargo space, on the toilet, in the cabin, or on the engine. Engine fire can arise from flying birds or

may be caused by fuel problems. Modern aircraft have a built-in system, which in such a case can extinguish the fire and safely continue the flight to an airport with one engine off [1, 3].

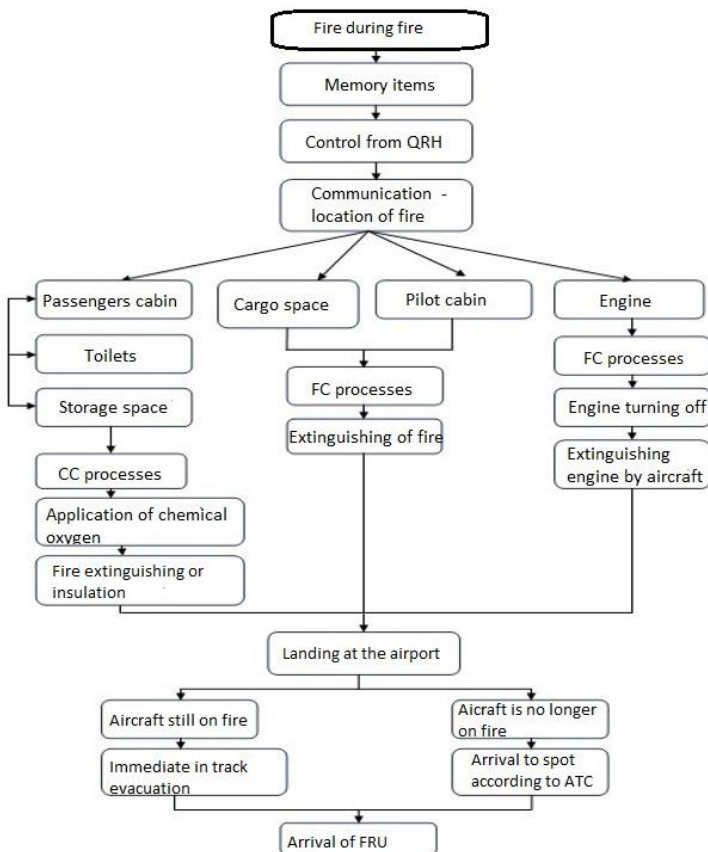


Fig.1 Fire during flight

In case of fire, the flight crew proceeds as follows: the first steps are taken by the crew from the memory, memory items - what they learned from the documentation. Subsequently, a QRH (Quick Reference Handbook) review describes procedures / instructions to deal with some faults, including crisis

management procedures. According to the indication (communication with flight crew members), pilots find out where and what the fire is about. The engine fire is first addressed by FC (Flight Crew - pilots) and the following procedures (preparation of cabin / passengers in emergency landing) in cooperation with CC (Cabin Crew - onboard personnel). If the fire occurs somewhere else, except for the cockpit and the engine, that's when the onboard staff is acting. This means that they will use the HOOD (a chemical oxygen developer and a face mask that can last about 10-15 minutes) and go to stop the fire or isolate the fire [3, 5]

2. LANDING GEAR FAILURE

In the case of a landing gear failure, the pilots perform an unsuccessful approach with the aircraft, move to the waiting area (HOLD) and apply the appropriate checklists. They will guide them on the progress of the emergency landing gear eject. If this is done, the aircraft will land normally, if not, it will take emergency landing. This means that the cabin crew is preparing the cabin for emergency landing, while pilots fly out of fuel, which could be burned unnecessarily in case of failure.

3. HEALTH PROBLEMS OF THE PASSENGER

During the flight, there may be various health problems on board, whether of passengers or crew. A first aid kit with basic tools is on board, as well as a doctor case for injections and more specialized instruments. It may happen that there is also a doctor or a nurse among the passengers. In the event of a more serious problem requiring professional medical care or devices, such as a cardiac arrest, the crew master decides whether to continue the flight or to land at an alternate aerodrome. Defibrillators are not on board because they have large magnetic rays and could endanger the safety of other people on board or the flight itself [7].

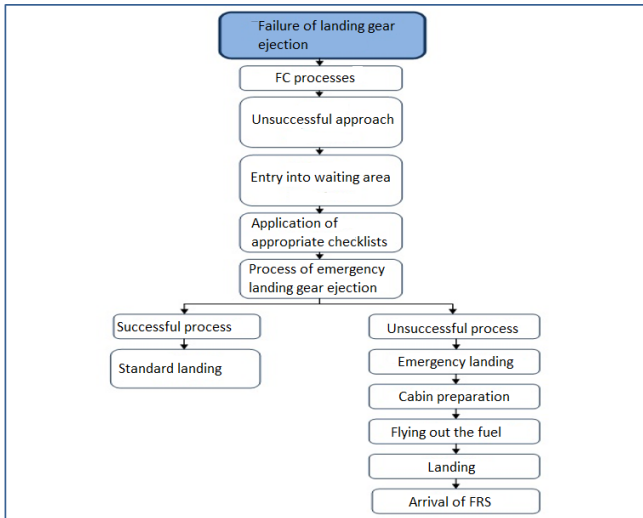


Fig.2 Landing Gear Failure

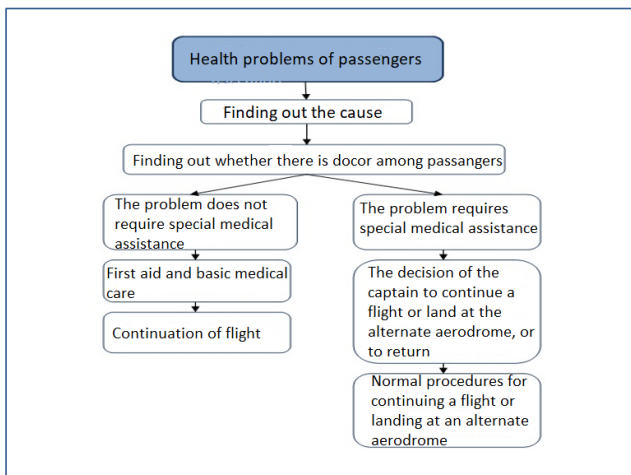


Fig.3 Health problems of passengers

4. EMERGENCY STATE AND LANDING

If a situation arises which requires extraordinary procedures, the pilot may declare a state of emergency or urgent state. The state of emergency is characterized by conditions that present a serious or immediate danger. The urgent condition is the conditions regarding the safety of the aircraft or persons on board which do not require immediate assistance.

At the beginning of the first message sent by the aircraft in case of emergency / urgency, the following signals are used:

- ✓ MAYDAY –in life-threatening situations,
- ✓ PAN-PAN – urgent situations without immediate threat to life.

Emergency procedures include all immediate threat reports requiring immediate assistance. Emergency call contains 3x MAYDAY, call sign, or emergency station identification. Behind this sign of emergency and station emergency sign, SOS message follows. [12, 13]

The concept of emergency landing is not used in aviation terminology. "Emergency landing" is divided into so-called „prepared and unprepared situation“. When preparing the cabin for emergency is required, flight crew members (when there is enough time) instruct passengers, to put their glasses off their faces and other objects that could hurt them, but before that the pilots light up the lights of the command to fasten the seatbelt.

Besides that, it is necessary for the cabin crew to secure the other things in the cabin, such as the wheelchairs, the storage cabinets above the heads, and so on. It must not be forgotten to repeat the emergency exits and if enough time, the floating vests instruction will be shown again. The pilots give the cabin crew a brief command ahead of the landing - "Brace for impact!" and the cabin crew begins commanding the passengers to take a trained position [13].

5. EVACUATION

The main task of the on-board staff is to ensure the safe evacuation of the aircraft in case of an emergency to get all passengers in time from the aircraft to safety. This must be done within a 90-second regulatory evacuation limit. Evacuation includes a whole range of activities; first of all, it is important to inform evacuated passengers and to instruct them appropriately. However, even attentive listening to safety instructions does not guarantee that passengers can handle everything in an emergency. In stress and in actual crises such as smoke, smell,

fire, water, the nerves begin to work, and it is therefore important that on-board staff in particular soften the situation and guide the passengers in the following ways. An important moment of evacuation is the safe opening of the escape door and the certainty that the evacuation slides - "creeps" are correctly inflated. [10, 11]

Even if the evacuation takes place with the immediate intervention of a fire and rescue service, the opening of the escape routes and the evacuation of the aircraft is the task of the crew. It is necessary to oversee, so that the passengers remain calm and find the right way to the emergency exit, not stopping in the corridors or evacuation slides, or taking away luggage or items that could damage the bloated skins. They can be disconnected after evacuations and serve as rescue boats.

CONCLUSION

On-board staff is instructed on appropriate skills as part of simulator training in the training centre. Every next year, they undergo the so-called "maintenance training and testing". For example, British Airways training centres at Heathrow Airport in London are equipped with simulators of all types of aircraft they operate. The simulators are mobile and immobile, enabling them to simulate a wide range of issues such as turbulence, hard landing, cabin smoke, and so on. There are also simulators of escape elements that are parts of carcasses with main entrance doors and with emergency exits in the seats. In-flight staff can learn to open the door in normal circumstances but also in the event of a chassis failure or blockage. The simulators are controlled by a computer that can simulate the problem. It goes without saying that the on-board staff must be able to handle normal rescue equipment that is located in the cabin, oxygen masks, floating vests, emergency devices for infants and so on.

It is also necessary for the cabin crew to be perfectly coordinated, that they train during the pre-flight training. In addition to practical issues regarding the passenger report (whether and where on board are people with special needs, small children, sick, but also religious or cultural specifics of the target country). An important part of security assurance is also the division of tasks in case of evacuation and the analysis of the tasks of the aircrew in case of the crisis situations solving that could occur during the flight.

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