

## **CHAPTER 4.5 – RECOMMENDATIONS ON SURVIVAL**

### **45.1 – Certification and use of safety belts**

The Commission established that the injuries sustained by the victims in a large number of cases had been caused by the impact against the seat in front of each passenger, or by the passenger's safety belt.

The regulations for certification ensure that under specific conditions of deceleration (as in a minor crash), the seats and safety belts should not cause severe injury to their occupants.

The Commission is aware that the constraints suffered at the time of the impact were generally greater than the constraints envisaged in the regulations for certification. However, the presence of survivors suggests that some lessons can at least be learnt from this accident. In particular, the nature of the injuries sustained by the victims led the Commission to contemplate the matter of safety harnesses.

The Commission noted that new regulatory demands had been introduced since the A320 received certification. These give the passengers added protection in case of an emergency landing. However, they do not provide for the mandatory use of safety harnesses.

**Consequently, the Commission recommends:**

**– that studies should be carried out to improve on the regulatory demands in the area of protecting passengers in the case of an emergency landing. In particular, the matter of compulsory use of safety harnesses should be studied.**

### **45.2 – Conditions for installation of the ELBA**

The Investigation showed that the ELBA had been destroyed on impact and that as a result, this equipment was of no use in locating the wreck, a task which proved long and difficult, contrary to popular belief in the case of an accident involving a large transport aeroplane.

The Investigation also demonstrated that the conditions of approval and installation of this equipment in force on the day of the accident did not reflect normal requirements for public transport and should have been more stringent. For this reason the Commission presented a preliminary recommendation on this point to the Minister on 20 February 1992.

The Commission has established that this recommendation has been followed up, and that conditions for approval and installation of this equipment were modified in the Order of 12 January 1993. However, the Commission notes that the methods used for verifying that installations conform to this modified legislation have not yet been updated in the relevant documents SFACT and STNA, and that significantly, the conditions for verifying the range potential are not specified.

**Consequently, the Commission recommends:**

**– that methods of verifying that ELBA installations comply with the new regulation should be updated in the relevant documents SFACT and STNA, and that the demands and conditions for measuring the range potential should be added.**

Furthermore, improving the Emergency Location Beacon's performance in terms of crash-resistance and range would be pointless unless the search teams are equipped with the necessary means of using them. In this regard it is important to use to the full the available means of pinpointing at their disposal: Terrestrial radio (amateur radio), location by satellite, but equally, aerial radiogoniometry.

**Consequently, the Commission recommends:**

**– that there should be a re-appraisal and stock should be taken of the aerial media that can be used by RCCs, so that within half an hour of a DETRESFA phase being triggered, these organizations can despatch an aerial platform equipped with a radio-electrical detector that can function day or night.**

### **45.3 – Organising Searches**

In the analysis, a certain number of imperfections came to light regarding pre-established search devices, which the Commission thinks should be remedied.

**Consequently, the Commission recommends:**

**– that systems and procedures should be studied and implemented to quickly reconstruct the radar trajectories and the radio-communications recorded by civil and military**

controlling bodies, so that these elements can be communicated to the competent RCC within half an hour of a distress signal being triggered;

– that directives should be set up to undertake a reappraisal of all the current SATER plans, taking into consideration lessons learnt from this accident, especially the following points:

- methods of installing and powering up the operational Command Post
- methods of employing personnel on the ground;
- sending back information about the terrain to the onsite CP and the RCC.

#### 45.4 – Organizing Aid

The Commission has established that the specially equipped medical units (SAMU) did not in fact operate at the scene. Medical operations were in fact carried out partly by military teams, accustomed to operating in the terrain, and partly by civilian doctors. Neither group was working within an organized framework. The Commission is also in doubt about conditions of evacuating some of the seriously injured, particularly considering their primary treatment at the scene, before being evacuated. The Commission has not been able to reach any conclusion on this point, but it appears that ways of improving the plan of action for giving first aid should have been studied.

Consequently, the Commission recommends:

– that appropriate directives should be set up, leading to a revision of the Red Plans, taking into consideration the lessons learned from this accident and especially the following points:

- a specialized, elite medical team should be made up immediately and despatched swiftly in the search zone, arriving at the scene of the accident well able to treat cases of multiple traumas;
  - coordination between the leaders of the search party, first aid and medics should be improved;
- that training programmes and operational orders given to medics and first aid workers should be checked and if necessary updated regarding conditions for providing care and evacuation for

the seriously injured at the scene of an accident.

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#### **45.5 – Organizing Communications and Controlling Access to the Site of the Accident**

The Commission has found that traffic problems on the access roads to Mont Saint-Odile, if not a hindrance to the search operation, were definitely a nuisance to the rescue operations. The Commission notes that these problems could be the result of methods of managing communications on the accident, and of conditions set down for controlling access to the site. On the other hand, the participation of the media and the public could sometimes be desirable during the search stage. It is a difficult subject and is not specifically addressed in the pre-established plans.

**Consequently, the Commission recommends:**

– that communications professionals should be brought into consultations on the question of handling communications in the event of an accident;

– that the principles of putting into effect measures for controlling access to the site of an accident or a search zone should be studied by the competent services, and that if necessary, they should be included in the appropriate plans.