

Improving Flight Data Recovery

Objectives

⁽¹⁾A detailed report of the "Flight Data Recovery" working group, dated 22 December 2009, is available on the BEA website.

In September 2009, the BEA formed an international "Flight Data Recovery"⁽¹⁾ working group in order to examine new technologies for the transmission of flight data, localisation and recovery of flight recorders. Several areas were explored, including data transmission by satellite, new technologies for flight recorders or underwater locator beacons (ULB). This group examined the feasibility and the maturity of technologies, as well as the costs and the advantages of the possible solutions compared to existing systems.

The group was made up of over 120 members from many countries, representing a wide range of actors in aviation: the investigation agencies from Germany (BFU), the United Kingdom (AAIB), the United States (NTSB), Australia (ATSB), Canada (TSBC), regulatory authorities (ICAO, EASA, FAA, DGAC...), airplane manufacturers (Airbus, Boeing), recorder manufacturers (L3Com, Honeywell, GE, DRS, EADS...), ULB manufacturers (Dukane, Benthos), airlines (Air France, Fedex), satellite manufacturers and access suppliers (Astrium, Inmarsat, Iridium, SITA...), international associations (IATA, IFALPA). This broad representation made it possible to undertake studies in all the relevant areas.

Results of the Working Group

Five solutions were selected that could be put into effect progressively:

- ❑ **Extending transmission time of the ULB's** attached to flight recorders (90 days instead of 30 days). This type of beacon is already available. Some airlines have already installed such beacons on their recorders. Generalisation of installations should start from 2011.
- ❑ **Installation of a low frequency ULB** (8.8 kHz) attached to the airplane. This beacon would increase the detection range and would, above all, allow international navies, equipped with sonar in this frequency band, to detect them. The technical specifications will be completed before the end of 2010. Certification, then the first installations, should take place in 2011.
- ❑ **Continuous transmission of basic airplane parameters** (through ACARS for example). In this way, frequent transmission of the airplane's position would make it possible to reduce the zone to be explored in case of searches in the sea or desert regions.
- ❑ **Triggered transmission of flight data** when an upcoming catastrophic event is detected. On this point, additional work is currently under way in order to evaluate the robustness of the triggering criteria and the reliability of the satellite connection when an airplane is subject to wide variations in pitch and bank. If the feasibility of this solution were confirmed, it could not however be implemented before 2018 due to the period of time required for the application of any possible future regulation.

- **Installation of deployable recorders**, equipped with an emergency locator transmitter. This type of recorder, already installed on some military aircraft, automatically separates from the fuselage at the moment of impact or when it is immersed. In the latter case, it rises to the surface of the water and floats, thus making localisation and recovery easier. The integrated emergency locator transmitter would make it possible to follow any drift. The study by the working group showed that it was difficult to install deployable recorders on airplane's whose initial design did not take into account installation of these recorders. Thus, only future models of aircraft could be equipped with such recorders.

The ICAO working group (FLIRECP), presided by an expert from the BEA, has written some proposals for modification of the international regulation on the basis of the results from the "Flight Data Recovery" working group. These proposals will be examined by the ICAO Air Navigation Commission and the member States. The publication of a new regulation should take place in 2012.