

CHAPTER 4.3 – RECOMMENDATIONS CONCERNING INSTRUMENTS

43.1 – Durability Standards for Regulation Flight Recorders

Use of the DFDR Flight Data Recorder on F-GGED was rendered impossible when the magnetic recording medium was destroyed in the fire.

Examinations carried out on the DFDR have established that it complied with applicable standards, which are criteria for resisting fires of medium or low intensity but continuing for a long time, as covered by the standards of protection (including the most recent ones, ED 55). These standards have proved to be insufficient. Fires such as these could occur especially when it may take several hours to locate the accident and transport firefighting equipment to the scene, as was the case with F-GGED.

This instance of the tape being destroyed by a fire of low intensity but of long duration is not unique. Similar cases have been mentioned in the remarks and recommendations supplied by the NTSB in this regard, to the FAA in May 1992.

Consequently, the Commission recommends:

– that the relevant body should undertake a study, liaising with industry and international regulatory bodies, to ensure greater protection for regulation flight recorders against fires of low intensity and long duration.

43.2 – Standards for Recorded Flight Data

Some flight data were missing in the analysis of the accident, so it was not possible to base the scenario on specific factors from the data.

The new standards (ED 55) provide for recordings as being of vital importance, but these standards were not enforced by the Order of 12 January 1993 amending the Order of 5 November 1987, except for aircraft whose first flight takes place after 31 December 1994. Consequently, unless additional legislation is made, a large number of aircraft fitted with a DFDR satisfying the previous standards (TSO-C51) are in danger of retaining this equipment, which has been demonstrated to be inadequate.

Consequently, the Commission recommends:

– that the DGAC, together with the international regulatory bodies, should study ways of extending this new legislation to aircraft that are subject to having this

equipment on a compulsory basis and that make their first flight prior to 1 January 1995.

43.3 – Standards for CVR Sound Quality

It required extensive study to make out F-GGED's CVR because the crew's conversations were scarcely intelligible, recorded as they were by an omni-directional microphone.

One solution to this problem would be to have the crews use hot mikes, particularly for take-off and landing.

Thus the Commission re-states recommendations already made on this matter by other Commissions of Investigation and by the Accident Investigation Bureau in recommending:

– that insofar as aircraft have hot mikes fitted, their use should be obligatory during take-off and landing;

– that studies into improving omni-directional recordings in the flight deck should be pursued, in particular to ensure greater intelligibility of crew members' conversations during flight.

43.4 – Recordings of Visual Information

At present, no visual information is recorded, neither the information displayed on the flight instrument screens giving navigation information and observing the aircraft's performance, nor the body language and non-verbal communication between crew members. The absence of any recordings of visual information has made it impossible to establish the scenario of the F-GGED accident with any certainty.

Aspects linked to the analysis of visual information supplied to the crew, as well as aspects linked to cockpit ergonomics and teamwork are becoming increasingly vital to Inquiries.

Consequently, the Commission recommends:

– that studies should be carried out into recording pictures, on protected media, of instrument panels and the flight deck. These pictures would then be synchronized with the other regulation recordings.

43.5 – Recording Approach Radar Information

The approach radar information at Strasbourg was not

recorded. The absence of recordings from this radar has prevented the use of the picture of the tracks supplied by this station to the Approach Controller at Strasbourg.

In France, nine approach control centres have a recording system for their local radar. Having such a system provides better knowledge and analysis of the conditions under which different air traffic functions are carried out, and also permits better research if this should be necessary.

Consequently, the Commission recommends:

—that all Approach Control Centres should use a type of local radar that is fitted with a recording system that is also able to rapidly reconstruct information supplied by that radar.

43.6 – Coordinating Administrative and Judicial Procedures

In its analysis of the coordination of the administrative and judicial procedures, especially as regards recording devices, the Commission notes that in the case of this accident, the vital instruments were recovered and utilized. However, the Commission does find fault with the institutional confines set out by the inter-departmental communique of 3 January 1953.

The present confines and the way the practice has developed of giving greatest importance to the exactness of legal documents can, in the opinion of the Commission, have disastrous consequences as regards preserving certain vital instruments such as flight recorders. Both from the point of view of analysing the causes of an accident, and from the point of view of investigating where the responsibility lies, it would be useless, simply for the sake of fulfilling formalities, to seize instruments; moreover their preservation is not guaranteed.

Consequently, the Commission of Investigation recommends that:

— a study should be carried out of the legal framework and the clauses which should then have written into them permission for the work of the technical investigator, allowing him to safeguard instruments immediately, by prerogative of administrative and judicial enquiries.