

4.6 – RECOMMENDATIONS REGARDING AIR TRAFFIC PROCEDURES

46.1 – Exceptional Approach Procedures

The 05 VOR DME procedure in force at Strasbourg at the time of the accident contains three characteristics that are exceptions to the terms of Instruction No. 20754/DNA of 12 October 1982 regarding the establishment of procedures for departing, holding and approaching using instruments.

The investigation of the conditions surrounding the approach showed that the aircraft exited the turn in the procedure below the intermediate approach track, and as a result, this segment allowed for the reduction of the speed of the aircraft and for configuration for final approach, before it was curtailed.

Strictly speaking, since the aircraft had not assumed the whole of the intermediate approach segment, the exceptions of this segment were not re-examined.

However, the speed with which the necessary actions were executed to prepare the aircraft for the final turn in the procedure would probably have been compensated for by flying level after coming out of the turn.

This suggests that the existence of a segment of level flight in the intermediate approach is, in terms of safety, a significant factor in defining a VOR DME approach procedure.

Consequently, the Commission recommends:

- that air traffic services re-appraise all the exceptions agreed when the approach procedure was set up, particularly if there is no level flight on the intermediate approach stretch;**
- that if there is no possible solution other than an exception, the air traffic services are to inform users of the existence of an exceptional procedure and give details of the agreed exception;**
- that in their respective areas, Operators and air traffic services are to inform crews and Air Traffic Controllers of the existence and the details of such exceptions.**

46.2 – Crew Information Regarding Flight When Descending On Approach

An examination of the circumstances surrounding the command to begin the descent shows that at the time, the aircraft was at about 10 deg. to the approach track. The Commission did not consider this fact to be a cause of F-GGED crashing into the relief, but it does wish to emphasize the importance of this in terms of safety of the flight path.

Actually, bearing in mind the protection principle in a VOR DME approach, the ICAO's document 8168 advocates that the descent on the approach flight path should not begin until the deviation of the VOR indicator needle is greater than half of the scale, which corresponds to a deviation of 5 deg.

There are no regulations stipulating precisely what piloting orders apply when carrying out an approach procedure using instruments. In France, the texts concerning the establishment and use of approach procedures using instruments are Instruction No. 20754/DNA and the "User Manual for utilization of approach and departure procedures using instruments". The main purpose of the second document is to introduce the user to the basic principles and theories upon which the procedures have been constructed, by way of extracting certain rules for execution of the manoeuvres. In particular it highlights margins for flying which if abided by, will guarantee that the flight path of the aircraft is maintained in the region of protection of the approach.

Consequently, the Commission recommends:

– that training organisations and Operators make sure that the methods of piloting they use are in line with the thresholds of flight tolerances recognised in Instruction No. 20754/DNA regarding the establishment of procedures for departing, holding and approaching using instruments.

46.3 – Radar Guidance Training and Related Phraseology

The Strasbourg Approach Control provided the crew of F-GGED with radar guidance for part of the VOR DME approach. An examination of this guidance and the phraseology employed by the Controller showed that on the one hand the guidance did not allow the crew to go to the overhead of the intermediate approach fix (IF) and on the other hand, in several instances, the position information was not formulated according to regulation phraseology; this could have made it difficult to interpret.

The analysis carried out in connection with § 22.6 shows that the routing instructions given to the crew by way of radar guidance did contribute to cutting short the intermediate approach segment provided for in the definition of the approach procedure to prepare the aircraft for the final approach. They could also have contributed to the difficulties experienced in achieving the inbound track of the approach. This could have influenced the behaviour of the crew and encouraged them, at least for a moment, to instigate the execution of the commands necessary for preparing the aircraft for a descent.

The Commission notes that the development of regulations regarding radar approach guidance deals with this aspect and guarantees, a priori, the execution of level flight before the descent for final approach begins. RCA 3-121, dated 16 March 1992 and in effect from 2 April 1992 stipulates among other criteria that "guidance provided must permit the aircraft to execute level flight on the inbound track for at least 30 seconds before intercepting the glideslope".

Regarding the phraseology employed to inform crews of their radar position, the Order of 7 September 1984 specifies what formulation should be used. Although the analysis of § 22.6 did not show an erroneous interpretation on the part of the crew, the Commission believes that a particularly rigorous effort needs to be made concerning the phraseology employed.

Consequently, the Commission recommends:

- that air traffic services make a special effort in training their Air Traffic Controllers, and in training them about procedures and the phraseology to employ when giving radar guidance;
- that these services should regularly check that phraseology connected with radar guidance of an aircraft heading towards the final approach track is on the one hand in accordance with the established principles of the new regulations, and on the other hand is free from any ambiguity, especially for the crew;
- that the use of terms such as "through right" and "through left", used to give a crew its position relative to a fix are eliminated in practice.

46.4 – Content and Update of ATIS Messages

To prepare for their arrival at Strasbourg, the crew of F-GGED used information given by the ATIS at Strasbourg (ATIS: Automatic Terminal Information Service).

At the time of the accident, operating instructions for the ATIS appeared in Instruction No. 10140/DNA of 28 February 1984.

An examination of the contents of the messages received by the crew and the times at which the messages were sent show that on the one hand, the message November recorded at 16.00 hours was still being sent out at 17.56 hours, and on the other hand that the approach procedure to be expected was not mentioned.

Regarding the first point, the instruction in force at the time of the accident stipulated that "in all cases, an update of the ATIS message is essential at least once an hour in order to guarantee the credibility of the information. In all cases, any message more than an hour old should be considered invalid and should no longer be transmitted". Thus the ATIS had not been renewed as per the requirements of the regulation in force at the time.

Concerning the second point mentioned, the regulation that was applicable at the time of the accident did not require that the approach procedure should be prepared for. The analysis carried out for § 22.62 shows that informing the crew of the type of procedure to prepare for, would probably have clarified the situation. The Commission of Investigation notes that the development of regulations provides a solution to this problem by integrating which type of approach to expect, into the list of elements contained in the ATIS message (see Instruction No. 10120/DNA, and RCA 3.76 of 16 March 1992).

Consequently, the Commission recommends:

– that air traffic services should make a special effort to ensure that the ATIS is used in conformity with regulations.

46.5 – Identifying Arrival Procedures

The analysis carried out for § 22.62 shows that in the absence of precise information concerning which arrival route to follow, the crew of F-GGED could have envisaged several possibilities. Actually, the phrase "standard arrival at Strasbourg" used by the Controller of the Regional Air Navigation Centre did not convey the

information that probably would have helped to clarify the situation.

At the time of the accident, the only way to inform the crew precisely, would have been to list all the bearings of the course to follow.

An examination of the procedure charts for arrival at Strasbourg shows that the arrival routes have been named since 25 June 1992. This amounts to a solution to the stated problem.

Consequently, the Commission recommends:

– that air traffic services should make sure that all departure and arrival routes in the Terminal Control Area are designated and published according to the ICAO's recommendations, and that these designations should be used when clearance is being given.