



CONTROLLED FLIGHT INTO TERRAIN

In spite of concerted action throughout the industry, Controlled Flight Into Terrain (CFIT) remains a major accident cause.

According to the IATA Safety Report for 2003 there were eight fatal Controlled Flight Into Terrain (CFIT) accidents worldwide during 2003, which accounted for 136 fatalities.

Sadly, it would appear that three of these accidents involved European operators and took place within the European geographical area - two in Turkey and one in France.

It will be some time before the full details of the accident investigations are available and it is possible that the initial classification as CFIT proves to be inappropriate. The known facts of the three European accidents are summarised briefly on page 13.

CFIT occurs when an airworthy aircraft under the control of the flight crew is flown unintentionally into terrain, obstacles or water, usually with no prior awareness by the crew.

Pilots and controllers are involved equally in the ATC system, and their responsibilities overlap in many areas and provide backup.

The pilot-controller confirmation/correction process is a loop that ensures effective communication.

Whenever adverse factors are likely to affect communication, adherence to the confirmation/correction process is a line of defence against communication errors.

Controllers and pilots must work together, but there is a gap in their understanding of each other's challenges. The pilot is focused on a very complex aeroplane in the demanding environment of approach and landing. The controller is

focused on traffic flow. Both are balancing safety and efficiency.

Airline operators sometimes push flight crews with schedule pressures, shortening turn-around times and demanding greater productivity of aircraft and flight crews. They also push the ATC system to increase capacity of landing/takeoff runways, reduce landing intervals, reduce radar separation minimums, and use complex multiple-runway combinations. In this demanding environment, flight safety depends on spoken communication.

Although pilots and controllers work together, sometimes they don't understand each other's problems.

A programme on pilot-controller communication should involve pilots and controllers in joint meetings and in joint flight/ATC simulator sessions to promote a mutual understanding of each other's working environment.

Discussions, for example, could include problems caused by late clearances and last-minute runway changes. In the end, these are problems for pilots AND controllers.

An example of a successful programme that provided real-world experience and proved the value of mutual understanding between pilots and controllers was that between KLM and Amsterdam ATC.

Controllers participated in Flight Simulator sessions, acting as co-pilot and reading the check-list; on the command of the pilot they operated the flaps, landing gear and other systems; they conducted communications with ATC; and they contributed to decision making

in emergency and non-standard situations.

The results of these sessions were very encouraging and resulted in positive advances in mutual understanding being reported by pilots and controllers.

During the 1990s, international collaboration led by the Flight Safety Foundation (FSF) resulted in the development of the FSF Approach and Landing Accident Reduction (ALAR) Toolkit.

For more information, refer to www.flightsafety.org.

Date: 8 January 2003

Location: Diyarbakir, Turkey

Operator: THY Turkish Airlines

Aircraft Type: Avro RJ100 Regional Jet

Fatalities: Passengers - 70 / Crew - 5

The aircraft undershot during the final stage of a VOR/DME approach to RWY 34 at Diyarbakir, impacting the ground slightly to the side of the extended centreline of the runway, about 500m short of the runway threshold and 100ft below the airfield elevation. The aircraft broke up during the crash sequence and was destroyed by fire after eventually coming to rest. It is understood that, at the MDA, the pilots did not have visual contact with the runway.

The accident happened in darkness (2020L) and in poor weather. The reported weather at 1950L was: wind calm, visibility 3.5km, RWY 34 RVR 3,500m and falling, and scattered cloud at 4,000ft. However, at the accident location there is a small stream and it is reported that the fog was considerably thicker in this region.

The Turkish authorities recently ruled that the probable cause of this accident was pilot error. More specifically, they stated that 'the crew was insistent on landing despite the fact that neither the approach lights nor the runway was visible.'

Date: 26 May 2003

Location: near Macka, Turkey

Operator: UM Air (Ukraine)

Aircraft Type: Yakolev YAK-42

Fatalities: Passengers 62 / Crew 13

The aircraft was destroyed when it flew into a steep hillside near Macka during its second approach to RWY 29 at Trabzon. The accident happened shortly after the crew advised ATC that they were 'inbound' towards the Trabzon VOR.

The point of impact was at the 4,300ft level some 25km. south of the Trabzon VOR, which is located on Trabzon Airport. The accident happened in darkness (0413L). The reported weather was: wind

270°/11kt variable between 230° and 300°, visibility better than 10km in light rain showers, and scattered cloud at 1,200ft. However, it is thought likely that the mountains where the accident happened would have been shrouded in cloud.

Date: 22 June 2003

Location: Brest, France

Operator: Brit Air

Aircraft Type: Canadair Regional Jet

CRJ-100

Fatalities: Passengers nil / Crew 1

The aircraft undershot during the final stage of an ILS approach to RWY 26L at Brest, touching down about 2,300m before the threshold of the runway and about 450m. to the left of the extended centreline. After coming to rest the aircraft caught fire and was destroyed.

The accident happened in darkness (2351L) and in poor weather: wind 320°/9kts variable between 280° and 360°, visibility 800m in fog, RWY 26 RVR variable between 1,400m and 1,500m, and cloud broken at 200ft and scattered at 2,000ft. The aircraft was operating a flight (AF5672) from Nantes.

The aircraft was cleared to descend to 2,000ft and reached that altitude by about 7DME, continuing at 2,000ft until reaching the Outer Marker (4DME).

A further descent was then made to intercept the Glide Slope. However, this descent was continued, through the Glide Slope, which was crossed at a height of above 1,000ft, and seems to have continued at more or less the same rate until shortly before impact. The GPWS warning 'Glide Slope' had commenced, as the aircraft descended below it, 23 seconds before impact. The 'Glide Slope' and 'Sink Rate' warnings continued for the rest of the approach. Meanwhile, the aircraft had been slightly left of the localiser and continued to diverge, steadily, further to the left during most of the rest of the approach.

The earlier part of the approach had appeared normal but it is reported that the captain, who was handling the aircraft, apparently failed to respond to the warnings or noticeably react as the aircraft descended through the Glide Slope and continued below it. The co-pilot is reported as saying that, following the first 'Glide Slope' warning, he had looked at the captain who appeared to be sitting in a normal position, looking towards his instruments, with both hands on the control column. The co-pilot appears not to have commented on the aircraft's continued deviation below the Glide Slope but, reportedly, he put his hand on the TOGA button. The captain apparently still did not respond. The co-pilot then reportedly increased power and attempted to pull back on the control column, which 'felt as if it was blocked.' A few seconds later, the aircraft impacted the ground.