

SAFETY SENSE

MANAGING STRESS

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The weather was inclement that early summer morning on 13 July 2009. The Gulfstream IV SP, VT-MST, reported descending 'on the localizer' for runway 26 in IMC at Kerry airport (Ireland). The tower controller at Kerry airport did not have a radar. When the aircraft was around 800 ft above ground level the Shannon radar controller phoned Kerry tower and alerted him to the erroneous position and the imminent CFIT danger of VT-MST. The Kerry tower controller then instructed the aircraft to 'climb immediately to 3,500 ft'.

At this time the aircraft was in IMC approximately 6 NM south of the airfield tracking parallel to the localizer for runway 26 and heading towards high ground South West of the airfield.

The crew had descended on an erroneous, intermittent localizer signal. It is surprising that such a 'serious loss of navigational and situational awareness' (AAIB) could occur even with the sophisticated avionics in a Gulfstream aircraft. However, looking at the history of the flight, it becomes less surprising once the human reaction to stress and possibly fear and anxiety as well as poor crew coordination and a lack of basic airmanship are taken into account.

Stressors

A few minutes before the attempted approach VT-MST had taken off from runway 08 at Kerry for a flight to London Luton. During the take-off briefing the Commander designated Shannon as the take-off alternate.

Shortly after rotation, the left-hand windshield fractured. The pilots were concerned about the multiple cracks visible in the Commanders windshield. The crew stated when interviewed by the AAIB that 'confusion reigned in the cockpit and that things were happening fast'.

Initially the aircraft followed the SID. Then the co-pilot, who was pilot non-flying, requested to maintain 3'000 ft and to return to Kerry. Later the crew attributed this hasty choice to confusion.

WORKLOAD, PERFORMANCE, DENIAL



The aircraft was cleared to return to Kerry for the procedural ILS approach to runway 26.

The crew entered 'direct to EIKY' in the FMS and proceeded in a right turn towards the airfield. At this time the co-pilot programmed the FMS. Erroneously he selected the ILS 26 for their original destination Luton instead of Kerry. By coincidence both London Luton and Kerry have an ILS procedure for runway 26. With the incorrect approach procedure entered in the FMS there was no useful navigation information presented on the Navigation Displays.

As the aircraft completed the turn towards Kerry, the 'LOC capture ON' indication appeared on the EFIS display. The pilot-flying turned the Gulfstream onto the inbound course of 258°. The co-pilot reported to Kerry they had established on the localizer. The aircraft was then cleared for approach.

Between the decision to return to Kerry and the initiation of the approach only 3 minutes had elapsed. The crew rushed into an approach without having prepared for the approach and without having completed the set-up of the navigation system. Neither the normal checklists nor any abnormal checklists were completed in this short timeframe.

The aircraft was equipped with a Cockpit Voice Recorder. However the recordings were lost after landing. Therefore no record of the dialogues during this short flight exists and we can only assume that the pilots must have been facing a situation of stress, anxiety and work overload. The decisions they took though and the poor performance which resulted from these decisions indicate that the stress caused by the cracked windshield diminished the pilot's ability to react to the situation in a calm and structured way.

In IMC, flying low with a cracked windshield, the pilot's attention was focused on getting the aircraft down on the ground as quickly as possible.

And so, despite erratic localizer indications and the absence of a glide-slope indication, the Commander initiated and continued the approach following an erratic localizer signal well outside the promulgated area of use (+/-35° of the centerline within 17 NM). The 'LOC capture ON' indication appeared at around 7 NM from the threshold at 43° from the centerline. Around one minute later the 'LOC capture OFF' indication appeared. For the remainder of the descent there was no valid localizer or glide-path signal. The crew continued their descent as if they were established on the ILS.

POSITIVE

In a good safety culture, pilots don't fear blame when reporting events.

Absence of Navigation Cross-Check

The crew did not cross-check their position with other conventional navigation sources such as the Kerry NDB, which would have clearly indicated that the aircraft was not on the inbound track. Nor could they cross-check their posi-

tion with the FMS as the Luton ILS26 approach had been incorrectly entered.



can annihilate behavioral patterns acquired in training, in particular if the pilots have a low stress tolerance level.

Engine Run-Ups

After a second successful approach the pilots performed a number of engine run-ups to analyze an engine

stall which had occurred during the taxi into the apron after the incident flight. While doing so, they did not pull the CVR circuit breaker and thus the CVR record of the communication during the flight was overwritten. Not pulling the CVR CB was in clear contravention of Indian DGCA regulations.

Pilots and other personnel working in a poor safety culture tend not to report events. According to the investigation report, the pilots of VT-MST did not immediately bring the event to the attention of their superiors.

In addition, they did not preserve the CVR record for the AAIB investigation. They behaved as if the main problem was the engine vibration and performed engine run-ups as if nothing else had happened during the flight. Denial, not admitting what has happened, may also be caused by fear of being punished or blamed for wrong-doing: all ingredients of a poor safety culture, both on an individual level as well as on an organizational level.

While reconsidering their actions, both pilots admitted to the AAIB they should have continued the climb and taken more time to analyze their situation. It is evident that some of the lessons were learned by the crew. However, the human factors of this incident were not considered to the same extent as the technical and operational factors and the implications for the safety culture of this operator remain a matter of concern.

This time the crew was lucky and benefitted from a diligent and proactive ATC radar controller, and walked away from a serious incident unharmed. But relying on luck is not a good recipe to ensure a high level of safety.



From Abnormal Situation to Near-Crash

A cracked windshield does not pose imminent danger to the aircraft or its occupants. As such it is not an emergency situation and does not require an immediate landing. It is an abnormal situation.

The crew was evidently under a lot of stress and unnecessarily created a heavy workload for themselves by rushing into an approach. Without proper preparation the crew lost situational awareness and thereby endangered the safety of the aircraft and its occupants.

The time pressure which caused the crew to underperform was purely pilot-induced.

From a human factors point of view, this is comprehensible. Considering that pilots get trained to cope with abnormal situations, the 'rushed reaction' pattern remains worrying. Obviously stress

The Power of Denial

During the investigation after the flight the commander mentioned that he had observed engine vibration on No.1 engine and had reduced the thrust on this engine. This had also led him to expedite the return to Kerry. When reviewing the FDR data no vibration or change in thrust lever setting could be confirmed by the AAIB. Yet the commander insisted on his recollection of events.

The Power of a Good Safety Culture

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FALSE
In July 2009 VT-MST descended on an erroneous localizer signal.