

EXECUTIVE SUMMARY

On 18 September 2007, at 1632 Zulu (1832 Local), an F-16CG from the 31st Fighter Wing, Aviano Air Base, Italy, impacted the ground in a forested area near Soramae, Italy. The mishap aircraft (MA), Serial Number 88-0529, was destroyed upon impact. The mishap pilot (MP), assigned to the 510th Fighter Squadron, ejected safely, without injury. There were no civilian or military casualties. No personal property was damaged.

The MP was number one of a four ship formation planning to conduct day opposed surface attack tactics. This training mission was also the MP's certification flight to be upgraded to an instructor pilot. He was current and qualified to fly the mission. Preparation and planning were sufficient. While the flight was reduced to a three-ship formation when one member had to abort the mission before take-off, for reasons unrelated to the mishap, preflight and ground operations were normal. Forecast weather included the potential for instrument meteorological conditions (IMC) and thunderstorms on departure and in the assigned airspace for the mishap flight.

The causes of this mishap, supported by clear and convincing evidence, were pilot action and an aircraft malfunction that combined to produce a departure from controlled flight. Once the MA departed controlled flight, the aircraft malfunction also led to the inability to recover the MA. The MP encountered severe weather on departure with flight through IMC including thunderstorm and icing conditions. Eight minutes after takeoff, the MA's flight control computer began to receive unchanging, incorrect angle of attack (AOA) inputs. The freezing of the F-16 AOA probe is a design deficiency confirmed by expert analysis. Once frozen, the probes no longer input accurate data to the flight control system. As the MP attempted to gain and maintain visual meteorological conditions (VMC), he climbed to the top limit of the airspace, over 35,000 feet above mean sea level. In doing so, he allowed his airspeed to decay below 148 knots calibrated airspeed (KCAS) and achieved an actual AOA that exceeded critical levels. The faulty, unchanging AOA signal prevented the MA from making automatic flight control inputs to reduce the MA's actual, high AOA. This malfunction, combined with the MA's slow airspeed, led to departure from controlled flight. Once the MA departed controlled flight, the frozen AOA probes continued to provide incorrect flight parameters to the flight control system masking the actual AOA and preventing flight control inputs designed to affect self recovery of the MA.

Additionally, there were two factors contributing to the mishap, both supported by substantial evidence. First, severe weather in the assigned airspace for the mishap flight contributed in a number of ways. Icing conditions contributed to the MA malfunction; the high altitude of the cloud tops led the MP to climb to the top of the airspace; the lack of a clear horizon likely induced unrecognized Type 1 spatial disorientation in the MP, contributing to his failure to recognize the MA's slow airspeed. Second, the mishap flight evaluator (MFE) pilot did not act to direct the flight away from operating in thunderstorm conditions and did not intervene when he recognized the MP flew the MA into a high-altitude, slow-speed condition.

Under 10 U.S.C. 2254(d), any opinion of the accident investigators as to the cause of, or the factors contributing to, the accident set forth in the accident investigation report may not be considered as evidence in any civil or criminal proceeding arising from the accident, nor may such information be considered an admission of liability by the United States or by any person referred to in those conclusions or statements.