

EXECUTIVE SUMMARY

AIRCRAFT ACCIDENT INVESTIGATION F-16CG, SERIAL NUMBER (S/N) 89-2094 63RD FIGHTER SQUADRON (FS), LUKE AIR FORCE BASE (AFB), ARIZONA 16 FEBRUARY 2000

On 16 February 2000, at approximately 1208 Mountain Standard Time (MST), the mishap aircraft (MA), an F-16CG, S/N 89-2094 crashed on the Barry M. Goldwater Range Complex, South Tac. The mishap pilot (MP), Major Anthony J. Barrell, assigned to the 63 FS, 56th Fighter Wing, Luke AFB, Arizona, was on a transition track two syllabus air combat training sortie as number four of a four-ship flight. He ejected safely, sustaining minor cuts and abrasions. The MA was destroyed upon impact with the loss valued at \$19,091,844.48. There was no damage to private property as a result of this mishap.

Shortly before impact, the MA experienced an engine stall. The MP felt vibrations and eventually analyzed his problem as a compressor stall. The engine stagnated so the MP attempted three airstarts to try to recover the engine. Each resulted in a hot or hung start. After the third attempt, the MP determined he was too low for further actions and ejected from the MA.

Clear and convincing evidence shows that the mishap aircraft (MA) engine experienced a stall caused by domestic object damage (DOD) when rear compressor inlet guide vane (RCIGV) #72 fractured and proceeded through the high pressure compressor (HPC). Subsequently, the engine was damaged further during attempted airstarts. The mishap pilot (MP) ejected after the MA was no longer recoverable. There were two occasions in the sequence of events where this mishap could have been avoided:

- At the last scheduled depot visit (LSDV), the MA engine was taken apart for inspection of all components. Analysis shows that RCIGV #72 was cracked at that time. A visual inspection should have caught the crack. However, RCIGV #72 was reinstalled with no report of damage. Over time, the crack propagated and the blade eventually fractured initiating the mishap.
- The MP selected secondary engine control (SEC) mode while the engine was recovering from the stall. This caused an over temperature condition in the high pressure turbine (HPT) section. At the time the digital electronic engine control (DEEC) was operating properly and would have allowed the engine to recover. Selecting SEC overrode the DEEC logic and set up a fuel flow and nozzle schedule which severely damaged the engine making recovery impossible.

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 an aircraft accident, nor may such information be considered an admission of liability of the United States or by any person referred to in those conclusions or statements.